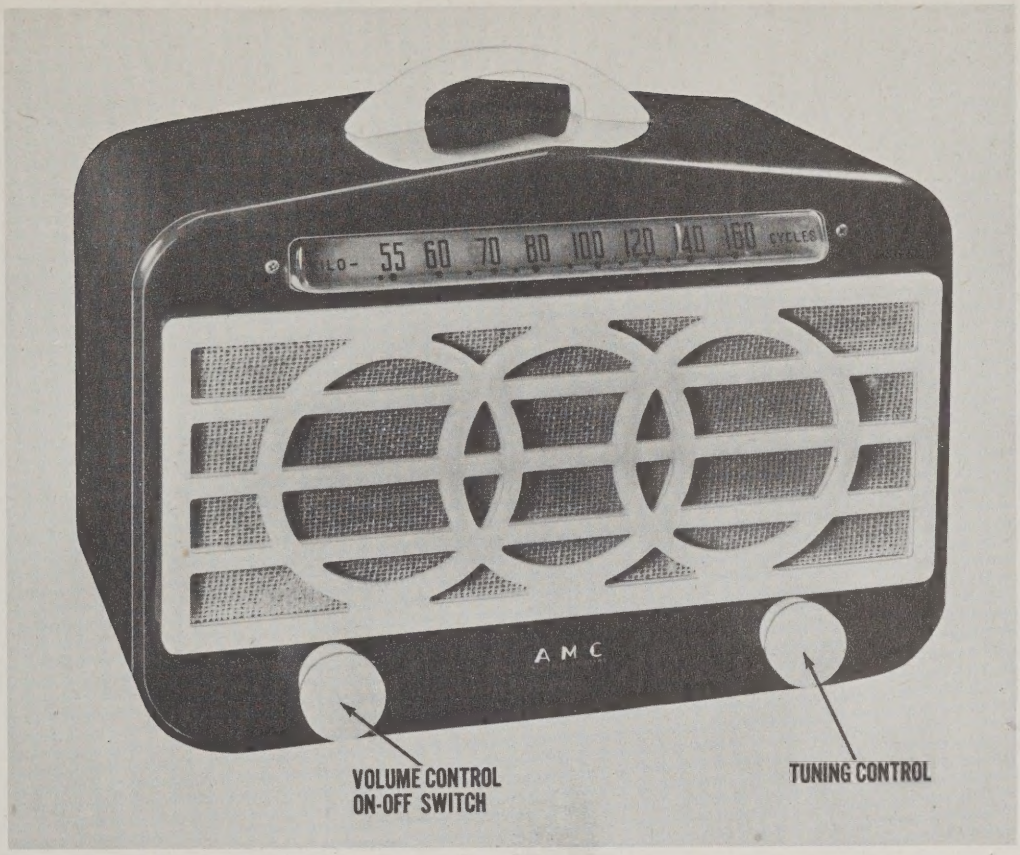

AMC
MODEL 126

AMC
MODEL 126

AMC MODEL 126

TRADE NAME	AMC, Model 126
SUPPLIER	Associated Merchandising Corp., 1440 Broadway, New York 18, N.Y.
TYPE SET TUBES (SIX)	AC-DC Operated Superheterodyne Receiver-Self Contained Loop Antenna Types, 6SS7 RF Amp., 12SA7 Converter, 6SS7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	105-125 Volts AC-DC
TUNING RANGE—BROADCAST	540-1650KC RATING .260 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and B-. Volume should be at maximum, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to Pin 4 (grid) 6SS7. Low side to B-.	455KC	Tuning cap fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
	Place signal generator lead near loop.	1650KC	"	"	A5	Adjust for maximum output.
	"	1500KC	Tune for maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: AMC PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	6SS7	6SS7	8N	
2	Converter	12SA7	12SA7	8R	
3	IF Amp.	6SS7	6SS7	8N	
4	Det.-AVC-AF	12SQ7	12SQ7	8Q	
5	Power Output	50L6GT	50L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AMC PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7	20	150		UT-201	PRS150-20	BR2015	TC45	M-20-150	Filter
8A	80	150	5.400-2	EL340†	AF88D	UP6CJ44†	FP357†	DY-8040-150	■ Filter
B	40	150			PRS150-40				▲ "
9	.05	400		TC-15	484-05	DT4S5	TP426	S-4-05	Line Filter
10	.02	400		TC-12	484-02	DT4S2	TP423	S-4-02	Output Plate Bypass
11	.01	200		TC-11	484-01	DT4S1	TP421	S-4-01	Audio Coupling
12	.01	200		TC-11	484-01	DT4S1	TP421	S-4-01	" "
13	.01	200		TC-11	484-01	DT4S1	TP421	S-4-01	AVC Filter
14	.02	200		TC-12	484-02	DT4S2	TP423	S-4-02	" "
15	.2	400		TC-2	484-.2	DT4P2	TP429	S-4-2	Line Isolation
16	.006	600		TC-26	684-006	DT6D6	TP409	S-6-006	Ext. Grd. Isolation
17	.05	200		TC-15	484-05	DT4S5	TP426	S-4-05	IF Cath. Bypass
18	250	500		1FM-325	1468-00025	5W5T25	MC240	MO.5-325	Audio Plate Bypass
19	100	500		1FM-31	1468-0001	5W5T1	MC235	MO.5-31	Tone Compensation
20	100	500		1FM-31	1468-0001	5W5T1	MC235	MO.5-31	IF Bypass Diode
21	100	500		1FM-31	1468-0001	5W5T1	MC235	MO.5-31	RF Coupling

†Parallel sections to obtain desired capacity.

CONTROLS

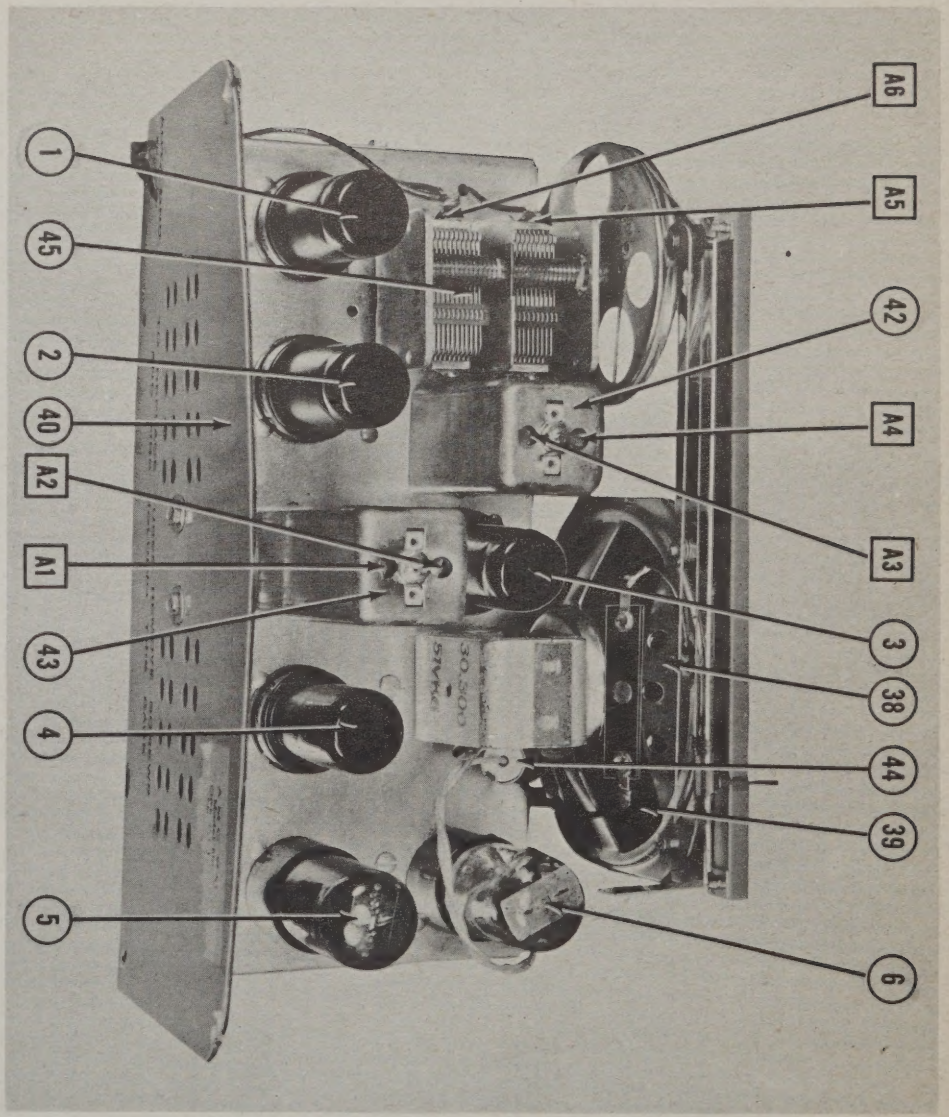
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AMC PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
22A	1 Meg.	1	8.200	MK402#	D13-137#	AM-63-Z#	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 22A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

#Install a 47KΩ resistor in series with the right hand terminal of the control and the lead connecting to the same terminal of the original control. (Control viewed from shaft side, terminals down).

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AMC PART No.	IRC PART No.	IDENTIFICATION CODES
23	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
24	220KΩ	½		BTS-220K	Red-Red-Yl. Line Isolation
25	2200Ω	½		BTS-2200	Red-Red-Red RF Plate Load
26	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Converter Grid
27	22KΩ	½		BTS-22K	Red-Red-Or. Oscillator Grid
28	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
29	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AF Grid
30	220KΩ	½		BTS-220K	Red-Red-Yl. AF Plate Load
31	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
32	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
33	1000Ω	2		BT-2-1000	Br.-Blk.-Red Filter
34	100Ω	1		BW-1-100	Br.-Blk.-Br. Filter
35	270Ω	½		BW-½-270	Red-Vi.-Br. Pilot Light Shunt
36	270Ω	½		BW-½-270	Red-Vi.-Br. IF Cathode

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AMC PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
37	2000Ω	3.2Ω	186Ω	.65Ω	9.200	A-3876	T22S45		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			AMC PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-105		
38	PM	3.2Ω	30.300	Mod. P5-X		
	CONE DIA.	VC DIA.				
39	4-1/2"	5/8"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

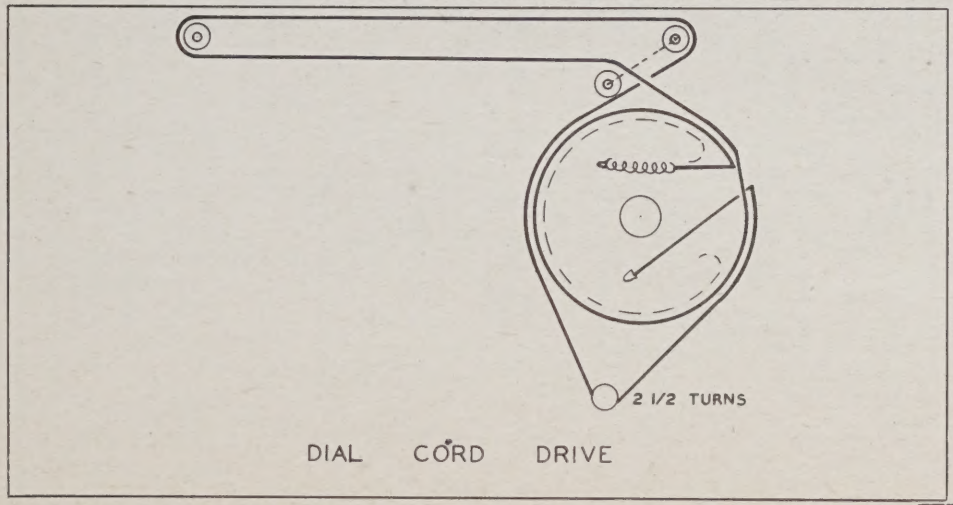
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	AMC PART No.	MEISSNER PART No.	
40	Loop Ant.	.3Ω	3.5Ω	1.411		
41	Osc. Coil	.8	6.5Ω	1.402-1	14-1040	Add 50 MMFD from grid to high side tuning cap.
42	Input IF	43Ω	43Ω	1.259	16-6658	
43	Output IF	42Ω	42Ω	1.409	16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					AMC PART No.		
44	Bayonet	6-8	0.15	Brown			Type 47

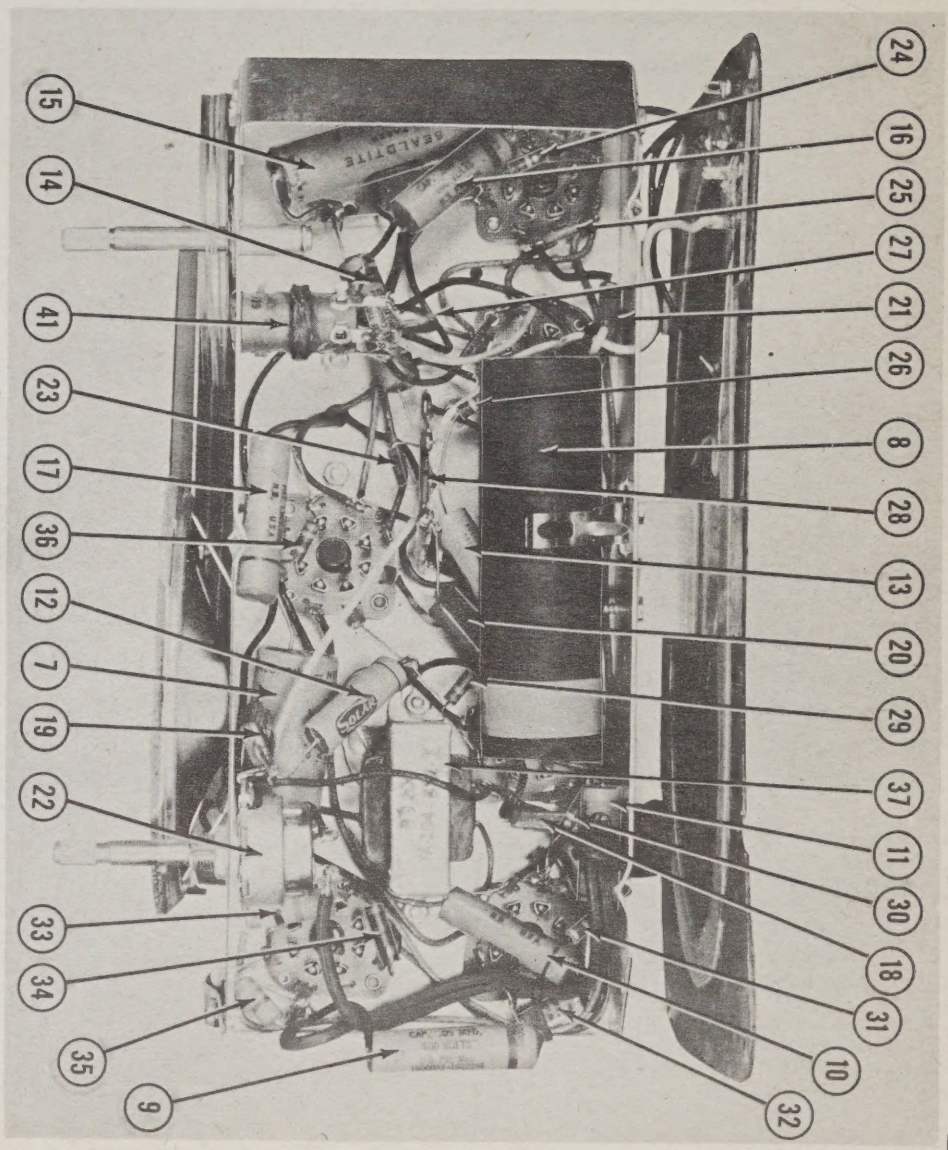
MISCELLANEOUS

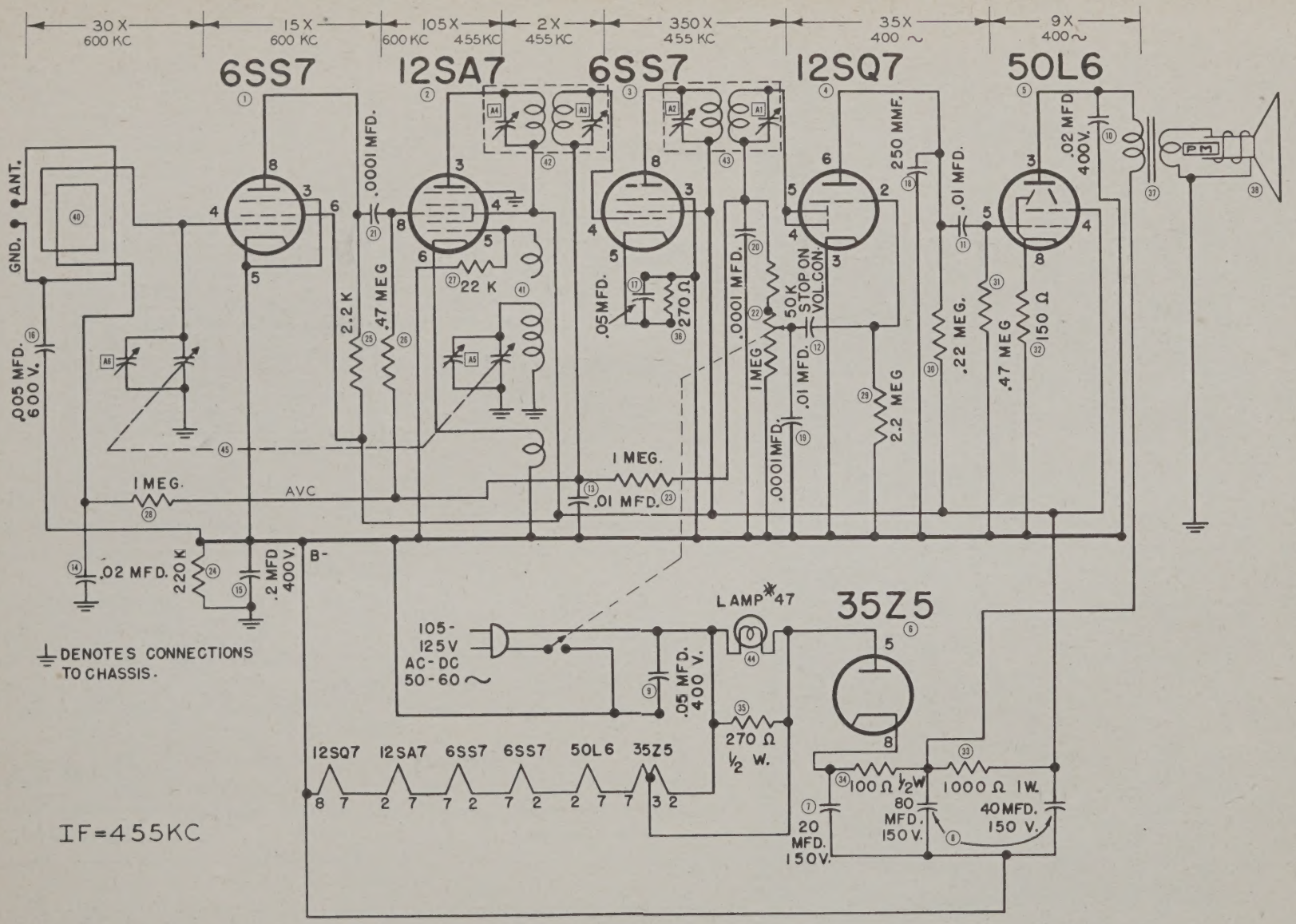
ITEM No.	PART NAME	AMC PART No.	NOTES
45	2 Gang Var. Cap	2.163	(18-371MMF, 18-182MMF)



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





Pin No.	6SS7 Volt.	6SS7 Res	12SA7 Volt	12SA7 Res.
1	0V.	230K Ω	0V.	230K Ω
2	30V AC	28 Ω	12V AC	12 Ω
3	0V.	0 Ω	85V DC	250K Ω
4	-2.5V DC	2.8 MEG.	85V DC	250K Ω
5	0V.	0 Ω	-3.2V DC	20K Ω
6	85V DC	250K Ω	0V.	.5 Ω
7	24V AC	23 Ω	24V AC	23 Ω
8	63V DC	250K Ω	-2.5V DC	2.2 MEG

Pin No.	6SS7 Volt.	6SS7 Res	12SQ7 Volt	12SQ7 Res.
1	0V.	230K Ω	0V.	230K Ω
2	36V AC	34 Ω	-3.5V AC	2.3 MEG
3	0V.	0 Ω	0V.	0 Ω
4	-1.5V DC	1.8 MEG.	-3.5V DC	1 MEG.
5	2.2V DC	270 Ω	-3.5V DC	1 MEG.
6	85V DC	250K Ω	58V DC	470K Ω
7	30V AC	28 Ω	12V AC	12 Ω
8	85V DC	250K Ω	0V.	0 Ω

Pin No.	50L6GT Volt.	50L6GT Res	35Z5GT Volt	35Z5GT Res.
1	0V.	INF.	0V.	INF.
2	36V AC	34 Ω	117V. AC	107 Ω
3	110V DC	250K Ω	113V. AC	102 Ω
4	85V DC	250K Ω	85V DC	250K Ω
5	0V.	440K Ω	113V. AC	102 Ω
6	0V.	0 Ω	115V DC	250K Ω
7	87V AC	80 Ω	87V. AC	80 Ω
8	5.8V DC	140 Ω	122V DC	250K Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

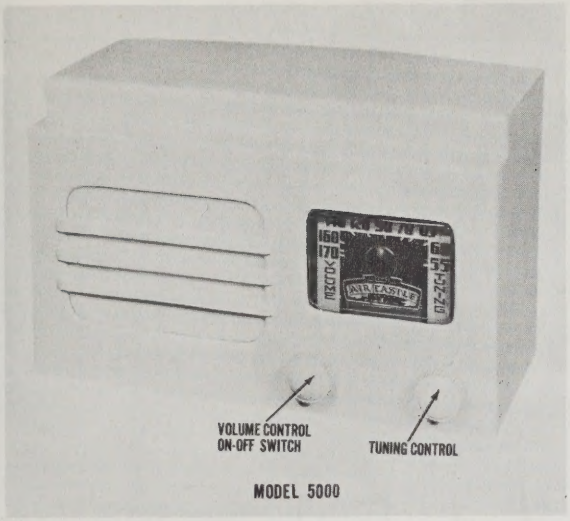
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

476-1

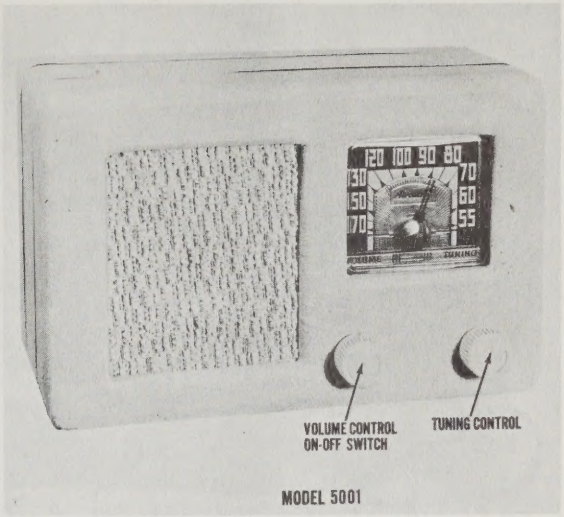
The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

AIRCASTLE
MODELS 5000, 5001



MODEL 5000



MODEL 5001

AIRCASTLE
MODELS 5000, 5001

TRADE NAME	Aircastle, Models 5000, 5001
SUPPLIER	Spiegel, Inc., 1061 W. 35th St., Chicago, Ill.
TYPE SET	AC-DC Superheterodyne Receiver-Self Contained Loop Antenna
TUBES(FIVE)	Types, 12SA7GT Converter, 12BA6 or 12SK7GT IF Amp., 12AT6 or 12SQ7GT Det.-AVC-AF, 50L6GT Power Output, 35W4 or 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC
TUNING RANGE—BROADCAST	540-1720KC RATING .230 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn variable fully closed and set pointer at last reference mark at low frequency end of dial. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and B-. Volume control should be at maximum volume and output of signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of rear section of variable. Low side to B-.	455KC	High frequency end.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 to reduce hum modulation.
.1 MFD.	"	1720KC	"	"	A5	"
200MMFD.	High side to external ant. lead. Low side to B-.	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: AIRCASTLE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SA7GT	12SA7GT	8AD	
2A	IF Amp.	12BA6	12BA6	7BK	
B	IF Amp.	12SK7GT	12SK7GT	8N	
3A	Det.-AVC-AF	12AT6	12AT6	7BT	
B	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5A	Rectifier	35W4	35W4	5BQ	
B	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIRCASTLE PART No.	REPLACEMENT DATA: SPRAGUE PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: MALLORY PART No.	REPLACEMENT DATA: SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	40	150	EC-3	TA-240	PRSA150-40-40	BRD4215	2N514	M-2x40-150	Filter - Red
B	20	150							" - White
7	.05	400	PC-5	TC-15	484-05	DT4S5	TP426	S-4-05	Line Filter
8	.01	400	PC-7	TC-11	484-01	DT4S1	TP421	S-4-01	Output Plate Bypass
9	.01	400	PC-7	TC-11	484-01	DT4S1	TP421	S-4-01	Audio Coupling
10	.01	400	PC-7	TC-11	484-01	DT4S1	TP421	S-4-01	" "
11	.05	400	PC-5	TC-15	484-05	DT4S5	TP426	S-4-05	AVC Filter
12	.1	400	PC-9	TC-1	484-.1	DT4P1	TP428	S-4-1	Line Isolation
13	.01	400	PC-7	TC-11	484-01	DT4S1	TP421	S-4-01	Ant. Coupling
14	200	500		1FM-32	1468-0002	5W5T2	MC237	M0.5-32	Audio Plate Bypass
15	220	500		1FM-32	1468-0002	5W5T2	MC237	M0.5-32	IF Bypass Diode
16	47	500		1FM-45	1468-00005	5W5Q5	MC225	M0.5-45	Osc. Grid Capacitor

CONTROLS

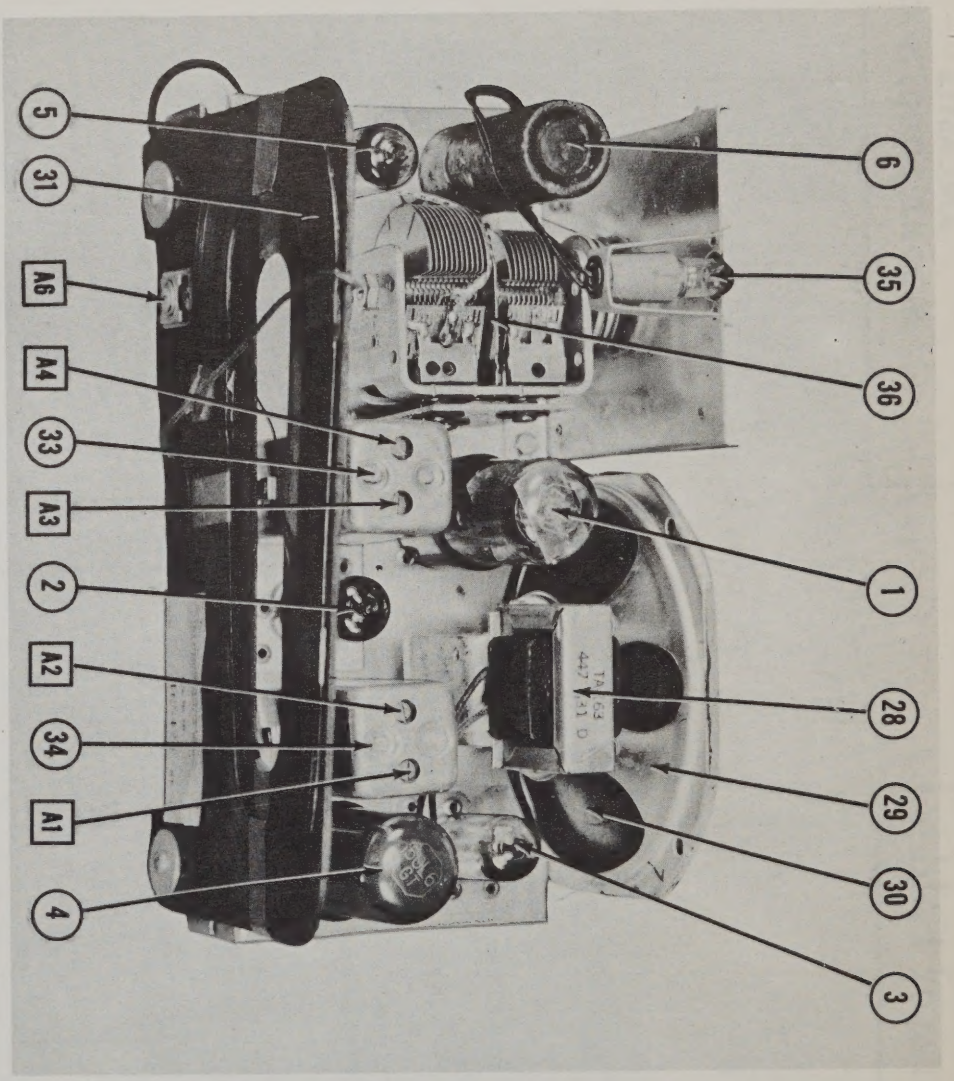
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRCASTLE PART No.	REPLACEMENT DATA: MALLORY PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	INSTALLATION NOTES
17A	500KΩ	1		MR48	D13-133	M-60-Z	Volume Control-See Note 1
B	Shaft			Not Req.	A	Not Req.	Attach to 17A per instructions
C	Switch			M26	41	SW-A	" " " " "
17A	1 Meg.	1		MR53	D13-137	M-63-Z	Volume Control-See Note 2
B	Shaft			Not Req.	A	Not Req.	Attach to 17A per instructions
C	Switch			M26	41	SW-A	" " " " "
17A	500KΩ	1		MK401	D13-133	AM-60-Z	Volume Control - See Note 3
B	Shaft			Not Req.	E	KSS-3	Attach to 17A per instructions
C	Switch			M26	41	SW-A	" " " " "
17A	1 Meg.	1		MK402	D13-137	AM-63-Z	Volume Control - See Note 4
B	Shaft			Not Req.	E	KSS-3	Attach to 17A per instructions
C	Switch			M26	41	SW-A	" " " " "

Note 1-Used in later production when original has plain shaft.
Note 2-Used in early production when original has plain shaft.
Note 3-Used in later production when original has knurled shaft.
Note 4-Used in early production when original has knurled shaft.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRCASTLE PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
18	33KΩ	½	IR-16	BTS-33K	Or.-Or.-Or. Oscillator Grid
19	2 Meg.	½	IR-13	BTS-2.2 Meg.	Red-Blk.-Grn. AVC Network
20	2 Meg.	½	IR-13	BTS-2.2 Meg.	Red-Blk.-Grn. AF Grid
21	470KΩ	½	IR-11	BTS-470K	Yl.-Vl.-Yl. AF Plate Load
22	470KΩ	½	IR-11	BTS-470K	Yl.-Vl.-Yl. Output Grid
23	150Ω	½	IR-14	BW-½-150	Br.-Grn.-Br. Output Cathode
24	1800Ω	1		BTA-1800	Br.-Gray-Red Filter
25	47Ω	½	IR-4	BW-½-47	Yl.-Vl.-Blk. Rectifier Ballast
26	91Ω	½		BW-½-100	White-Br.-Blk. IF Cathode
27	50KΩ	½		BTS-47K	Grn.-Blk.-Or. Diode RF Filter

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AIRCASTLE PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
28	2040Ω	2.8Ω	150Ω	.6Ω	Part of SPK-4	A-3876*	T22S45*		*Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			AIRCASTLE PART No.	JENSEN PART No.		
29	FIELD PM	VC IMP. 2.8Ω	SPK-4	ST-105† Mod. P5-X		†Cut 3/8" from flange to clear dial.
30	CONE DIA. 4-9/16"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

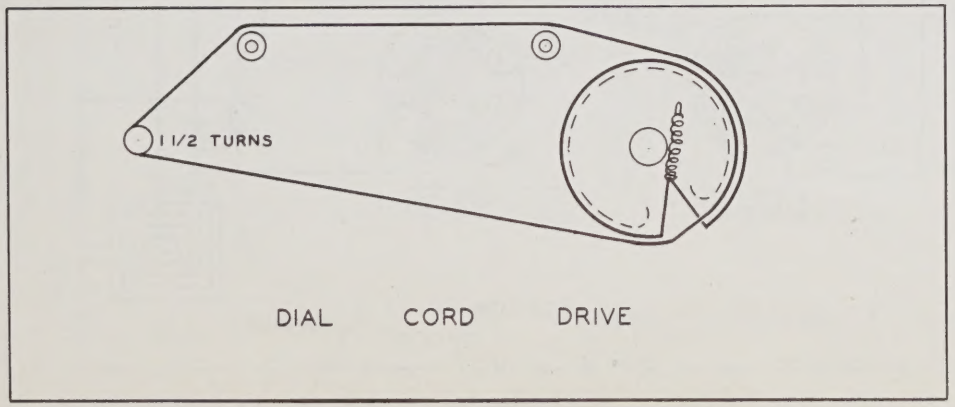
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	AIRCASTLE PART No.	MEISSNER PART No.	
31	Loop Ant.	.1Ω	1.5Ω	LL-1		
32	Osc. Coil		7.8Ω	LO-2		
33	Input IF	19Ω	19Ω	LI-1	16-6666	
34	Output IF	20.5Ω	19Ω	LI-2	16-6667	

DIAL LIGHT

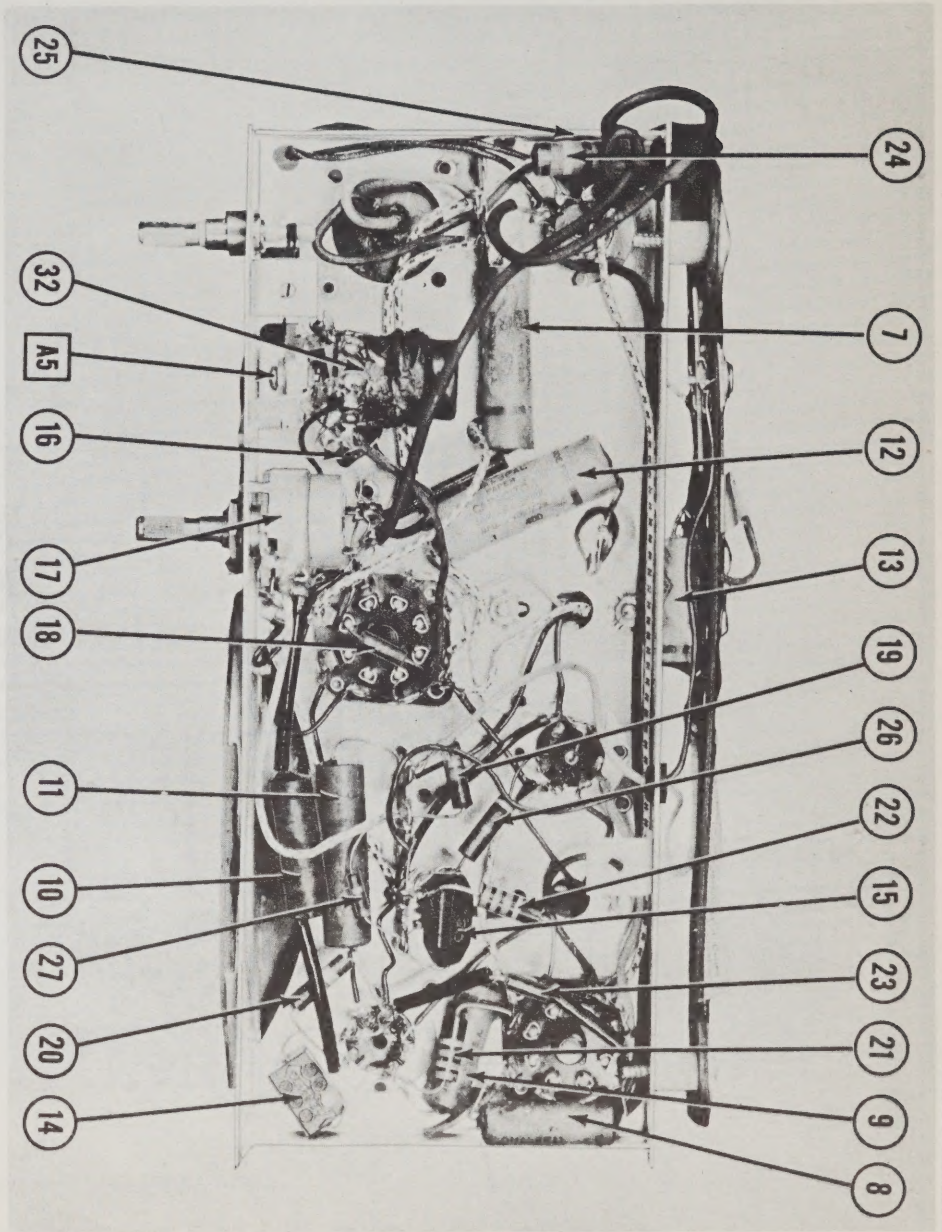
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					AIRCASTLE PART No.		
35	Bayonet	6-8	0.15	Brown	PB-1		Type 47

MISCELLANEOUS

ITEM No.	PART NAME	AIRCASTLE PART No.	NOTES
36	2 Gang Var. Cap.	GC-2	(8-368MMF, 29-194MMF).

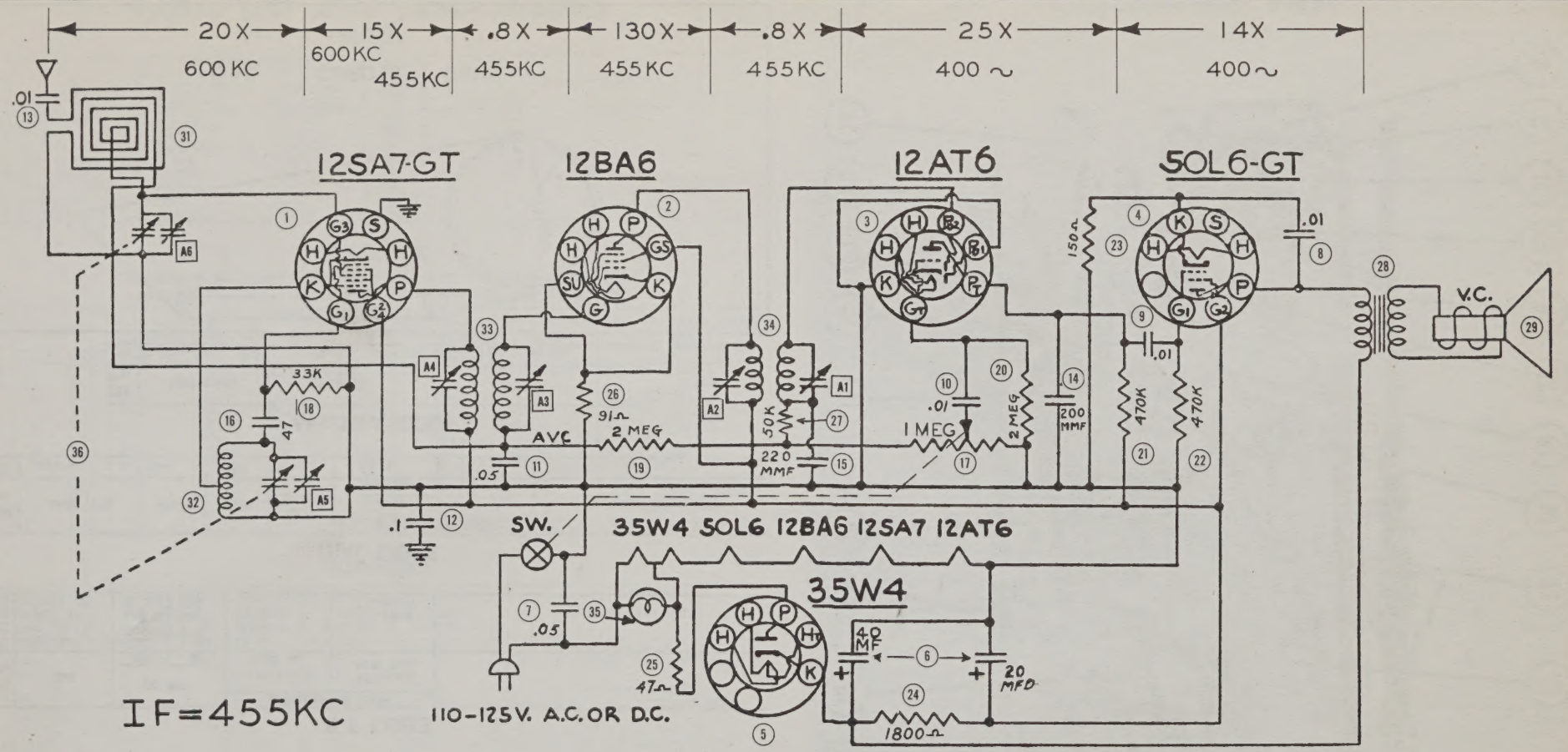


CHASSIS—BOTTOM VIEW



AIRCASTLE MODELS 5000, 5001

AIRCASTLE MODELS 5000, 5001



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7GT	0V.	23V.AC	82V.DC	82V.DC	-3.5V.DC	0V.	12V.AC	-2V.DC
2	12 BA6	-2V.DC	0V.	23V.AC	35V.AC	82V.DC	82V.DC	1V.DC	
3	12 AT6	-.8V.DC	0V.	12V.AC	0V.	-5.5V.DC	-55V.DC	35V.DC	
4	50L6GT	0V.	88V.AC	113V.DC	82V.DC	0V.	118V.DC	35V.DC	5.1V.DC
5	35W4	0V.	0V.	88V.AC	117V.AC	108V.AC	113V.AC	118V.DC	

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7GT	0Ω	22Ω	400KΩ	400KΩ	32KΩ	.5Ω	12Ω	2.5MEG.
2	12BA6	2.5MEG.	0Ω	22Ω	34Ω	400KΩ	400KΩ	90Ω	
3	12AT6	1.8MEG.	0Ω	12Ω	0Ω	490KΩ	490KΩ	870KΩ	
4	50L6GT	INF.	79Ω	400KΩ	400KΩ	400KΩ	400KΩ	34Ω	125Ω
5	35W4	INF.	INF.	79Ω	105Ω	145Ω	103Ω	400KΩ	

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

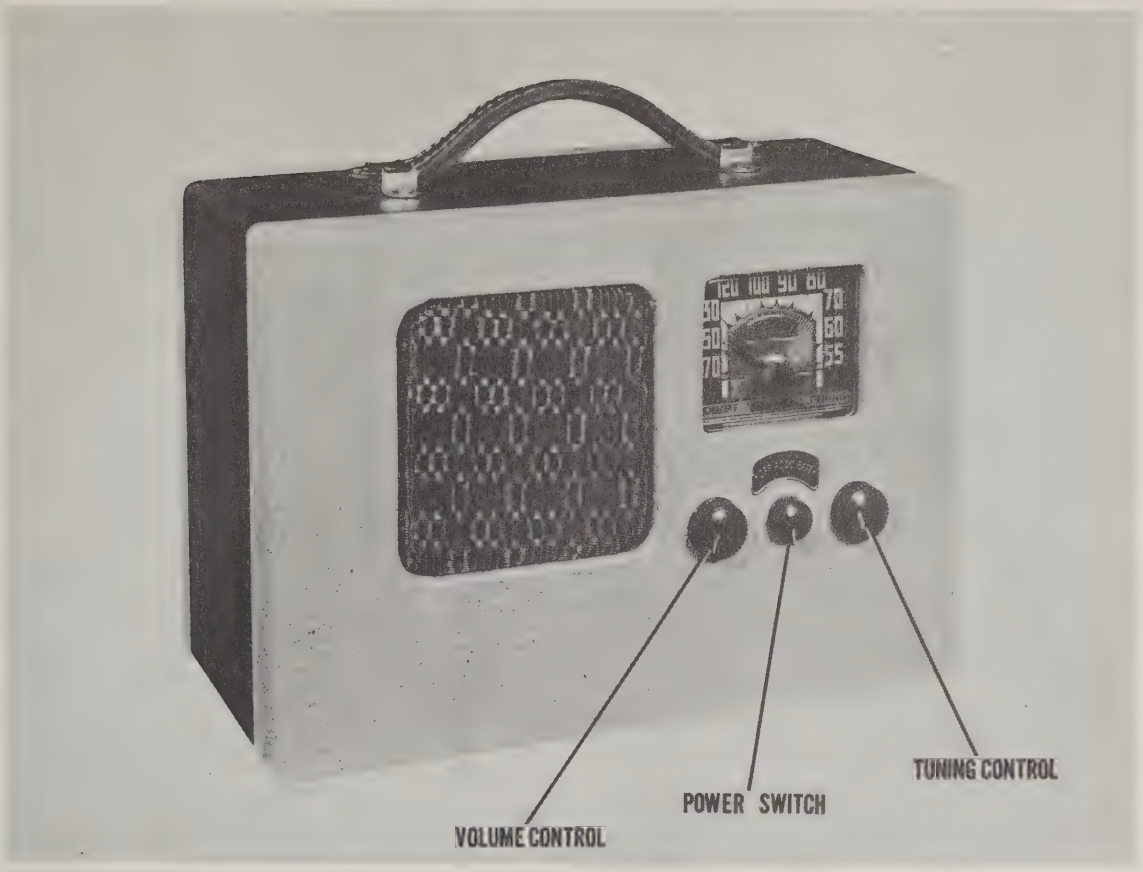
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

476-2

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

AIRCASTLE
MODEL 5020



AIRCASTLE
MODEL 5020

AIRCASTLE MODEL 5020

TRADE NAME	Aircastle, Model 5020
SUPPLIER	Speigel, Inc., 1061 W. 35th St., Chicago, Ill.
TYPE SET	3 Power Portable, AC-DC-Battery Superheterodyne - Self Contained Loop Antenna
TUBES (FOUR)	Types, 1A7GT Converter, 1N5GT IF Amp., 1LH4 Det.-AVC-AF, 3Q5GT Power Output.
POWER SUPPLY	110-125 Volts AC-DC or 2-4½ V "A" Batteries & 2-45 V "B" Batteries
RATING	.170 Amps. @ 117V AC or 14MA @ 9V DC and 51MA @ 94V DC
TUNING RANGE—BROADCAST	540-1720KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn variable fully closed and set pointer at the last reference mark at the low freq. end of the dial. Use battery power for alignment if available. If AC power is used, use isolation transformer if available. If not, connect capacitor in series with the low side of the signal generator and chassis. Set volume control at maximum volume and keep input from signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of rear section of variable. Low side to chassis.	455KC	High freq. end.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If AC power is used without an isolation transformer, reduce dummy ant. to 200 MMF. to rehum modulation.
.1 MFD.	"	1720KC	"	"	A5	"
200MMF.	High side to ext. ant. lead. Low side to ext. gnd. lead.	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: AIRCASTLE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	1A7GT	1A7GT	7Z	
2	IF Amp.	1N5GT	1N5GT	5Y	
3	Det.-AVC-AF	1LH4	1LH4	5AG	
4	Power Output	3Q5GT	3Q5GT	7AP	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIRCASTLE PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
5A	40	150		EL-26	AF844D‡	UP6CJ44	FP214	DY-604020-150	▲ Filter
B	60	150		EL-21	PRS150-40				■ "
C	20	150					TC45		"
6	70	10	EC-6	UHC-112	PRS25-100	BRH121		M-100-50	Filament Bypass
7	.05	400	PC-5	TC-15	484-05	DT4S5	TP426	S-4-05	Line Filter
8	.005	600	PC-6	TC-25	684-005	DT6D5	TP408	S-6-005	Output Plate Bypass
9	.005	600	PC-6	TC-25	684-005	DT6D5	TP408	S-6-005	Audio Coupling
10	.05	400	PC-5	TC-15	484-05	DT4S5	TP426	S-4-05	Audio Plate Decoup.
11	.005	600	PC-6	TC-25	684-005	DT6D5	TP408	S-6-005	Audio Coupling
12	.05	400	PC-5	TC-15	484-05	DT4S5	TP426	S-4-05	AVC Filter
13	.05	400	PC-5	TC-15	484-05	DT4S5	TP426	S-4-05	Conv. Screen Bypass
14	.1	400	PC-8	TC-1	484-.1	DT4P1	TP428	S-4-1	IF Filament Bypass
15	100	500	MC-2	1FM-31	1468-0001	5W5T1	MC235	MO.5-31	Audio Plate Bypass
16	100	500	MC-2	1FM-31	1468-0001	5W5T1	MC235	MO.5-31	IF Bypass Diode
17	100	500	MC-2	1FM-31	1468-0001	5W5T1	MC235	MO.5-31	Osc. Grid Capacitor

‡Parallel sections to obtain desired capacity.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRCASTLE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
18A	1 Meg.	1		MR53	D13-137	M-63-Z	Volume Control-See Note 1
B	Shaft			Not Req.	A	Not Req.	Attach to 18A per instructions
18A	500KΩ	1		MR48	D13-133	M-60-Z	Volume Control-See Note 2
B	Shaft			Not Req.	A	Not Req.	Attach to 18A per instructions

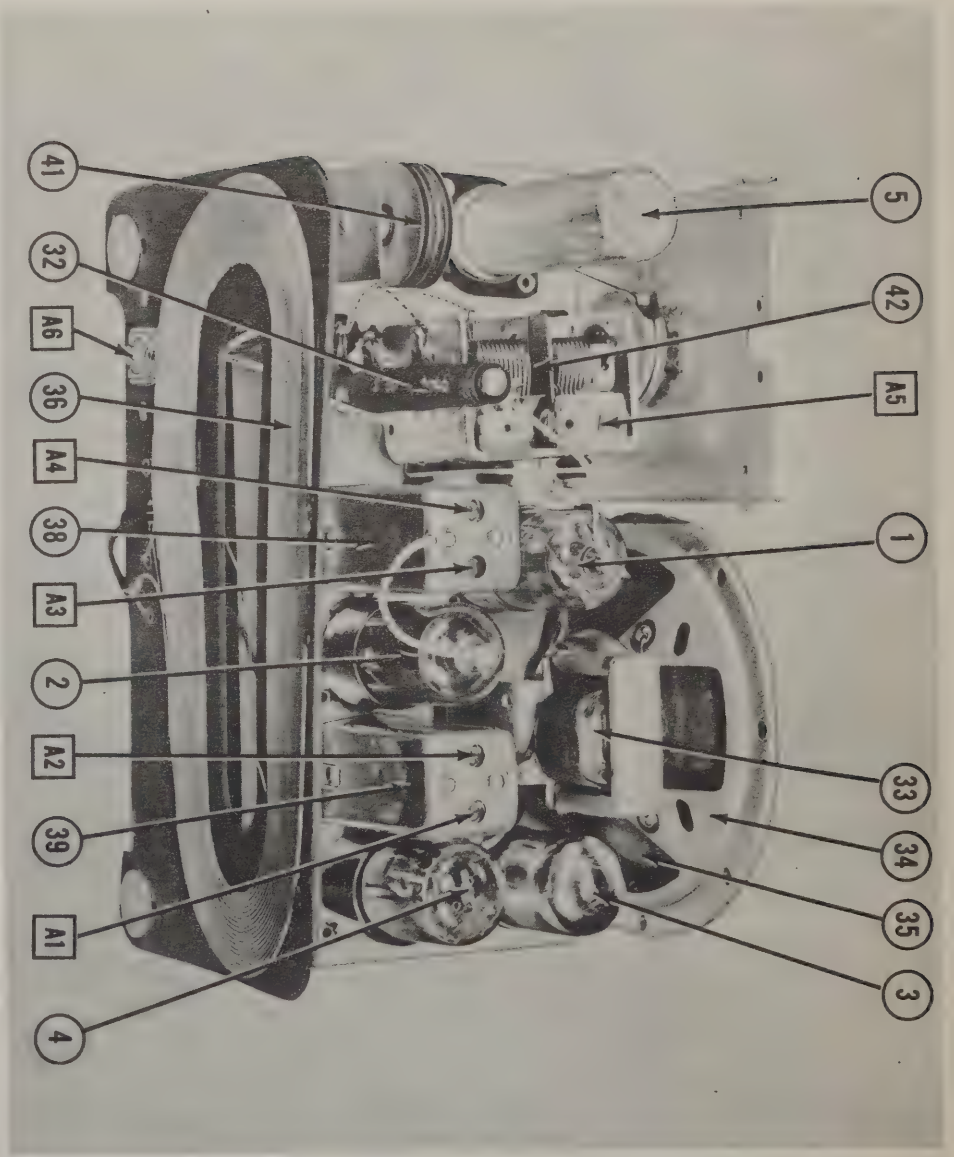
Note 1- Used in later production.
Note 2- Used in early production.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRCASTLE PART No.	IRC PART No.	IDENTIFICATION CODES
19	220KΩ	½	IR-20	BTS-220K	Red-Red-Yl. Oscillator Grid
20	22KΩ	½		BTS-22K	Red-Red-Or. Oscillator Screen Dropping
21	3.9 Meg.	½	IR-23	BTS-3.9 Meg.	Or.-White-Grn. AVC Network
22	82KΩ	½	IR-31	BTS-82K	Gray-Red-Or. Diode RF Filter
23	10 Meg.	½	IR-3	BTS-10 Meg.	Brl-Blk.-Blue AF Grid
24	1 Meg.	½	IR-12	BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load
25	470KΩ	½	IR-11	BTS-470K	Yl.-Vi.-Yl. AF Plate Decoupling
26	2.2 Meg.	½	IR-13	BTS-2.2 Meg.	Red-Red-Gm. Output Grid
27	680Ω	½	IR-32	BTS-680	Blue-Gray-Br. Filament String
28	270Ω	½	IR-33	BW-½-270	Red-Vi.-Br. Filament String
29	330Ω	½	IR-21	BW-½-330	Or.-Or.-Br. Filament String
30	1200Ω	½	IR-34	BTS-1200	Br.-Red-Red Filter
31	75Ω	2	IR-35	BW-2-68	Vi.-Grn.-Blk. Surge Limiter - See Note 3
32A	1050Ω	10	WR-3		Filament String
B	1050Ω				" "
C	55Ω				" "

Note 3 - Some models use two 150Ω 1 Watt resistor in parallel.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AIRCASTLE PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
33	6400Ω	3.1Ω	250Ω	.4Ω	Part of SPK-5	A-3878*	T22S46*		*Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

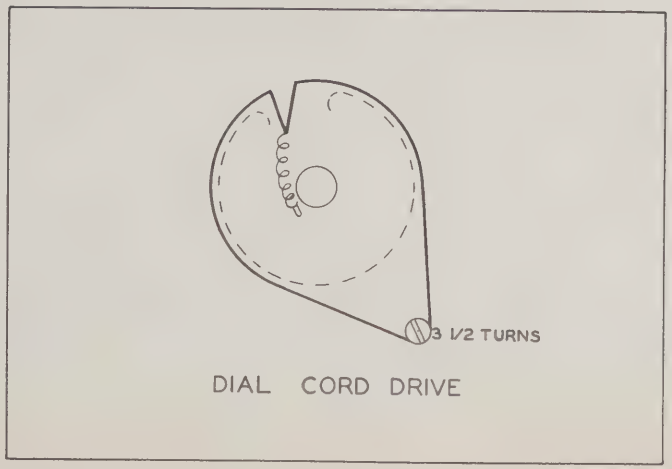
ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			AIRCASTLE PART No.	JENSEN PART No.		
34	FIELD PM	VC IMP. 3.1Ω	SPK-5	ST-105† Mod. P5-X		†Cut off flange to clear dial.
35	CONE DIA. 4-3/4"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	AIRCASTLE PART No.	MEISSNER PART No.	
36	Loop Ant.	.1Ω	1.5Ω	LL5		
37	Osc. Coil	.3Ω	1Ω	LO-8	14-1040	
38	Input IF	19Ω	20Ω	LI-3	16-6666	
39	Output IF	19.5Ω	19Ω	LI-4	16-6667	

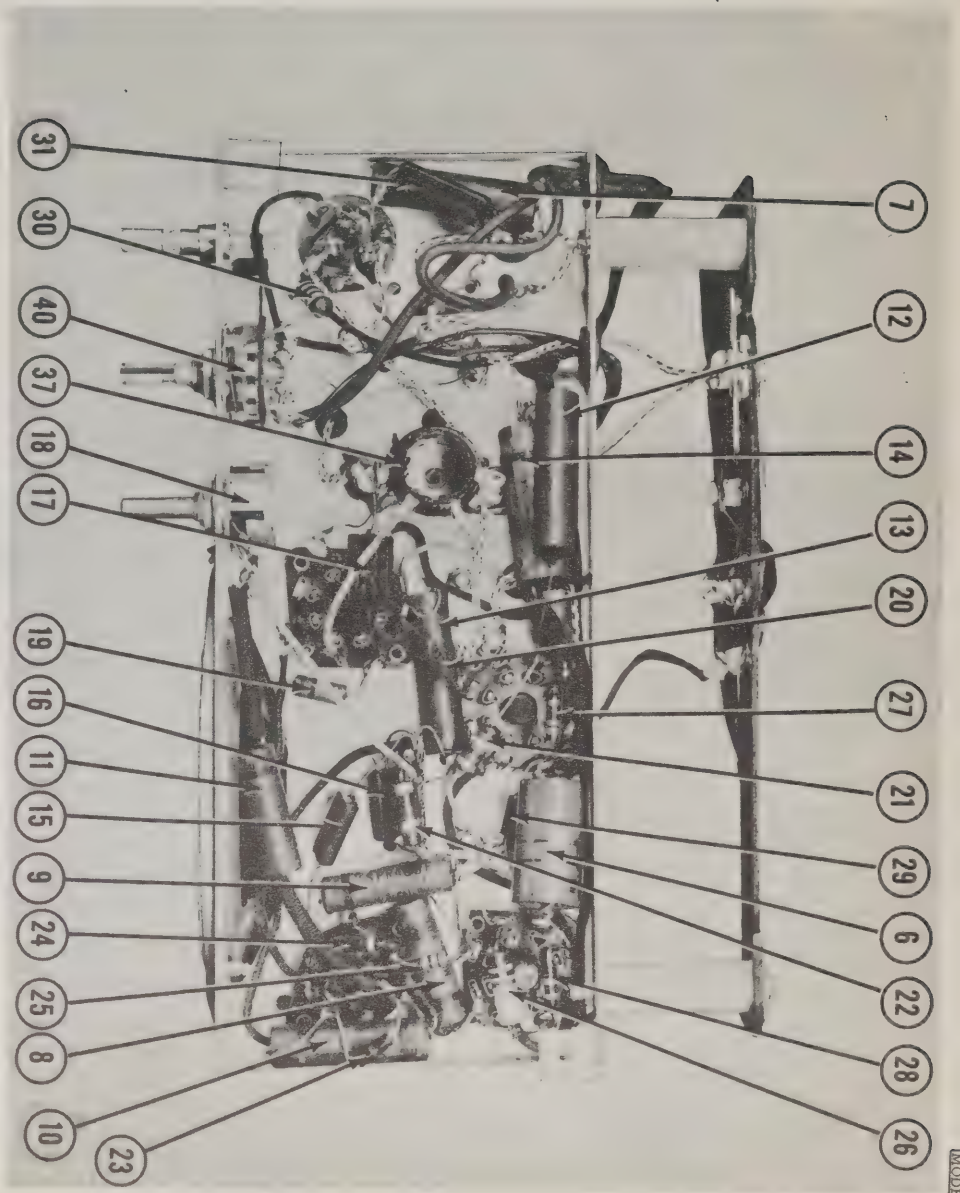
MISCELLANEOUS

ITEM No.	PART NAME	AIRCASTLE PART No.	NOTES
40	Power Switch	SW-3	4 Pole 3 Position
41	Rectifier	SR-1	Selenium
42	Tuning Cap.	GC-2	2 Gang Var. Cap.
A5	Trimmer Cap.	TC-6	Osc. Adj.
A6	" "	TC-7	Ant. Adj.

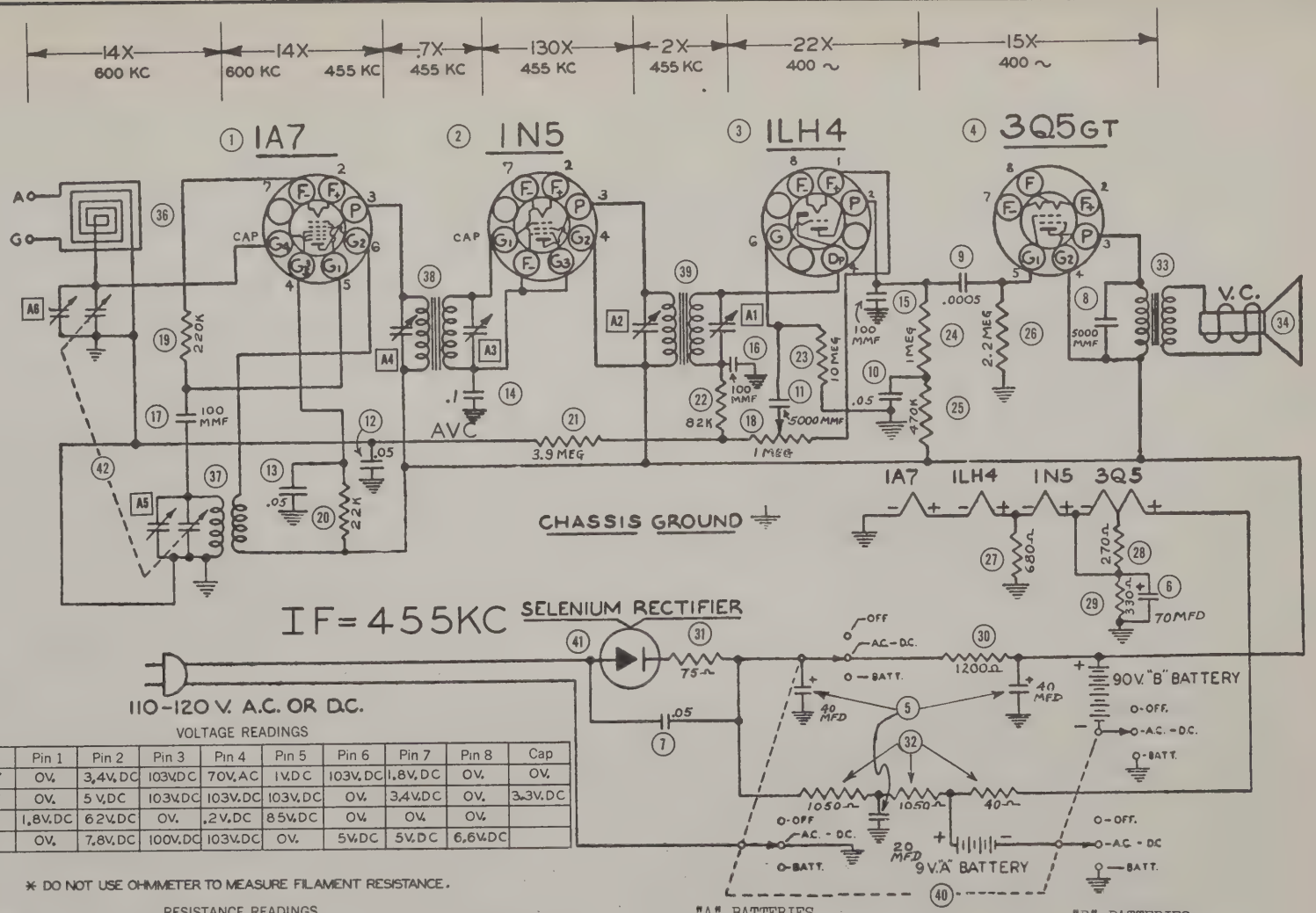


DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



AIRCASTLE MODEL 5020



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1A7 GT	0V.	3.4V.DC	103V.DC	70V.AC	1V.DC	103V.DC	1.8V.DC	0V.	0V.
2	1N5 GT	0V.	5 V.DC	103V.DC	103V.DC	103V.DC	0V.	3.4V.DC	0V.	3.3V.DC
3	1LH4	1.8V.DC	62V.DC	0V.	.2V.DC	85V.DC	0V.	0V.	0V.	
4	3Q5	0V.	7.8V.DC	100V.DC	103V.DC	0V.	5V.DC	5V.DC	6.6V.DC	

* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1A7 GT	0Ω	*	2.9KΩ	22KΩ	175KΩ	2.9KΩ	*	INF.	4.2MEG.
2	1N5 GT	0Ω	*	2.9KΩ	2.9KΩ	2.9KΩ	4.2MEG.	*	INF.	35Ω
3	1LH4	*	1.5MEG.	INF.	875KΩ	480KΩ	10MEG.	INF.	0Ω	
4	3Q5	0Ω	*	3.5KΩ	2.9KΩ	2.4MEG.	*	*	*	

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

"A" BATTERIES (2 Required)

Mfgr.	Volts	Type No.
Burgess	4½ "A"	G3
General	4½ "A"	3H3
Bright Star	4½ "A"	361
Usalite	4½ "A"	683
Rayovac	4½ "A"	P83A
Eveready	4½ "A"	746

"B" BATTERIES (2 Required)

Mfgr.	Volts	Type No.
Burgess	45 "B"	M30
General	45 "B"	W30B
Bright Star	45 "B"	3033
Usalite	45 "B"	640
Rayovac	45 "B"	P7830
Eveready	45 "B"	482

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

476-3

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

AIRCASTLE
MODEL 5020

AIRCASTLE
MODEL 5020

AIRCASTLE MODEL 5020

TRADE NAME	Aircastle, Model 5020
SUPPLIER	Speigel, Inc., 1061 W. 35th St., Chicago, Ill.
TYPE SET	3 Power Portable, AC-DC-Battery Superheterodyne - Self Contained Loop Antenna
TUBES (FOUR)	Types, 1A7GT Converter, 1N5GT IF Amp., 1LH4 Det.-AVC-AF, 3Q5GT Power Output.
POWER SUPPLY	110-125 Volts AC-DC or 2-4½ V "A" Batteries & 2-45 V "B" Batteries
RATING	.170 Amps. @ 117V AC or 14MA @ 9V DC and 51MA @ 94V DC
TUNING RANGE—BROADCAST	540-1720KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn variable fully closed and set pointer at the last reference mark at the low freq. end of the dial. Use battery power for alignment if available. If AC power is used, use isolation transformer if available. If not, connect capacitor in series with the low side of the signal generator and chassis. Set volume control at maximum volume and keep input from signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of rear section of variable. Low side to chassis.	455KC	High freq. end.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If AC power is used without an isolation transformer, reduce dummy ant. to 200 MMF. to rehum modulation.
.1 MFD.	"	1720KC	"	"	A5	"
200MMF.	High side to ext. ant. lead. Low side to ext. gnd. lead.	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: AIRCASTLE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	1A7GT	1A7GT	7Z	
2	IF Amp.	1N5GT	1N5GT	5Y	
3	Det.-AVC-AF	1LH4	1LH4	5AG	
4	Power Output	3Q5GT	3Q5GT	7AP	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIRCASTLE PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
5A	40	150		EL-26	AF844D‡	UP6CJ44	FP214	DY-604020-150	▲ Filter
B	60	150		EL-21	PRS150-40				■ "
C	20	150					TC45		"
6	70	10	EC-6	UHC-112	PRS25-100	BRH121		M-100-50	Filament Bypass
7	.05	400	PC-5	TC-15	484-05	DT4S5	TP426	S-4-05	Line Filter
8	.005	600	PC-6	TC-25	684-005	DT6D5	TP408	S-6-005	Output Plate Bypass
9	.005	600	PC-6	TC-25	684-005	DT6D5	TP408	S-6-005	Audio Coupling
10	.05	400	PC-5	TC-15	484-05	DT4S5	TP426	S-4-05	Audio Plate Decoup.
11	.005	600	PC-6	TC-25	684-005	DT6D5	TP408	S-6-005	Audio Coupling
12	.05	400	PC-5	TC-15	484-05	DT4S5	TP426	S-4-05	AVC Filter
13	.05	400	PC-5	TC-15	484-05	DT4S5	TP426	S-4-05	Conv. Screen Bypass
14	.1	400	PC-8	TC-1	484-.1	DT4P1	TP428	S-4-1	IF Filament Bypass
15	100	500	MC-2	1FM-31	1468-0001	5W5T1	MC235	MO.5-31	Audio Plate Bypass
16	100	500	MC-2	1FM-31	1468-0001	5W5T1	MC235	MO.5-31	IF Bypass Diode
17	100	500	MC-2	1FM-31	1468-0001	5W5T1	MC235	MO.5-31	Osc. Grid Capacitor

‡Parallel sections to obtain desired capacity.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRCASTLE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
18A	1 Meg.	1		MR53	D13-137	M-63-Z	Volume Control-See Note 1
B	Shaft			Not Req.	A	Not Req.	Attach to 18A per instructions
18A	500KΩ	1		MR48	D13-133	M-60-Z	Volume Control-See Note 2
B	Shaft			Not Req.	A	Not Req.	Attach to 18A per instructions

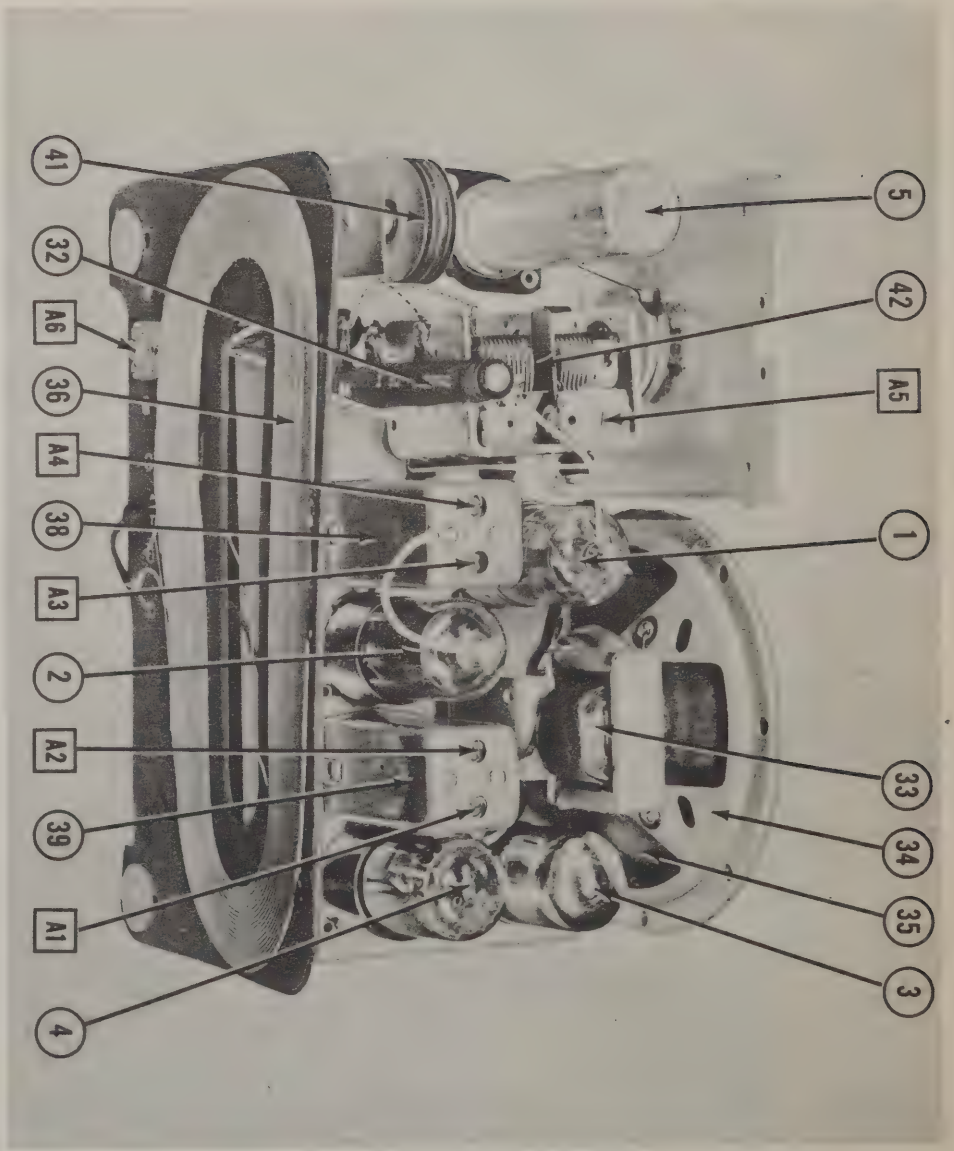
Note 1- Used in later production.
Note 2- Used in early production.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRCASTLE PART No.	IRC PART No.	IDENTIFICATION CODES
19	220KΩ	½	IR-20	BTS-220K	Red-Red-Yl. Oscillator Grid
20	22KΩ	½		BTS-22K	Red-Red-Or. Oscillator Screen Dropping
21	3.9 Meg.	½	IR-23	BTS-3.9 Meg.	Or.-White-Grn. AVC Network
22	82KΩ	½	IR-31	BTS-82K	Gray-Red-Or. Diode RF Filter
23	10 Meg.	½	IR-3	BTS-10 Meg.	Brl-Blk.-Blue AF Grid
24	1 Meg.	½	IR-12	BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load
25	470KΩ	½	IR-11	BTS-470K	Yl.-Vi.-Yl. AF Plate Decoupling
26	2.2 Meg.	½	IR-13	BTS-2.2 Meg.	Red-Red-Gm. Output Grid
27	680Ω	½	IR-32	BTS-680	Blue-Gray-Br. Filament String
28	270Ω	½	IR-33	BW-½-270	Red-Vi.-Br. Filament String
29	330Ω	½	IR-21	BW-½-330	Or.-Or.-Br. Filament String
30	1200Ω	½	IR-34	BTS-1200	Br.-Red-Red Filter
31	75Ω	2	IR-35	BW-2-68	Vi.-Grn.-Blk. Surge Limiter - See Note 3
32A	1050Ω	10	WR-3		Filament String
B	1050Ω				" "
C	55Ω				" "

Note 3 - Some models use two 150Ω 1 Watt resistor in parallel.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AIRCASTLE PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
33	6400Ω	3.1Ω	250Ω	.4Ω	Part of SPK-5	A-3878*	T22S46*		*Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

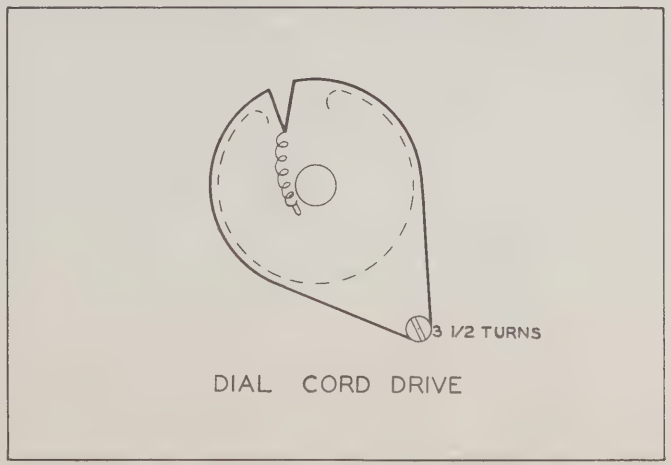
ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			AIRCASTLE PART No.	JENSEN PART No.		
34	FIELD PM	VC IMP. 3.1Ω	SPK-5	ST-105† Mod. P5-X		†Cut off flange to clear dial.
35	CONE DIA. 4-3/4"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	AIRCASTLE PART No.	MEISSNER PART No.	
36	Loop Ant.	.1Ω	1.5Ω	LL5		
37	Osc. Coil	.3Ω	1Ω	LO-8	14-1040	
38	Input IF	19Ω	20Ω	LI-3	16-6666	
39	Output IF	19.5Ω	19Ω	LI-4	16-6667	

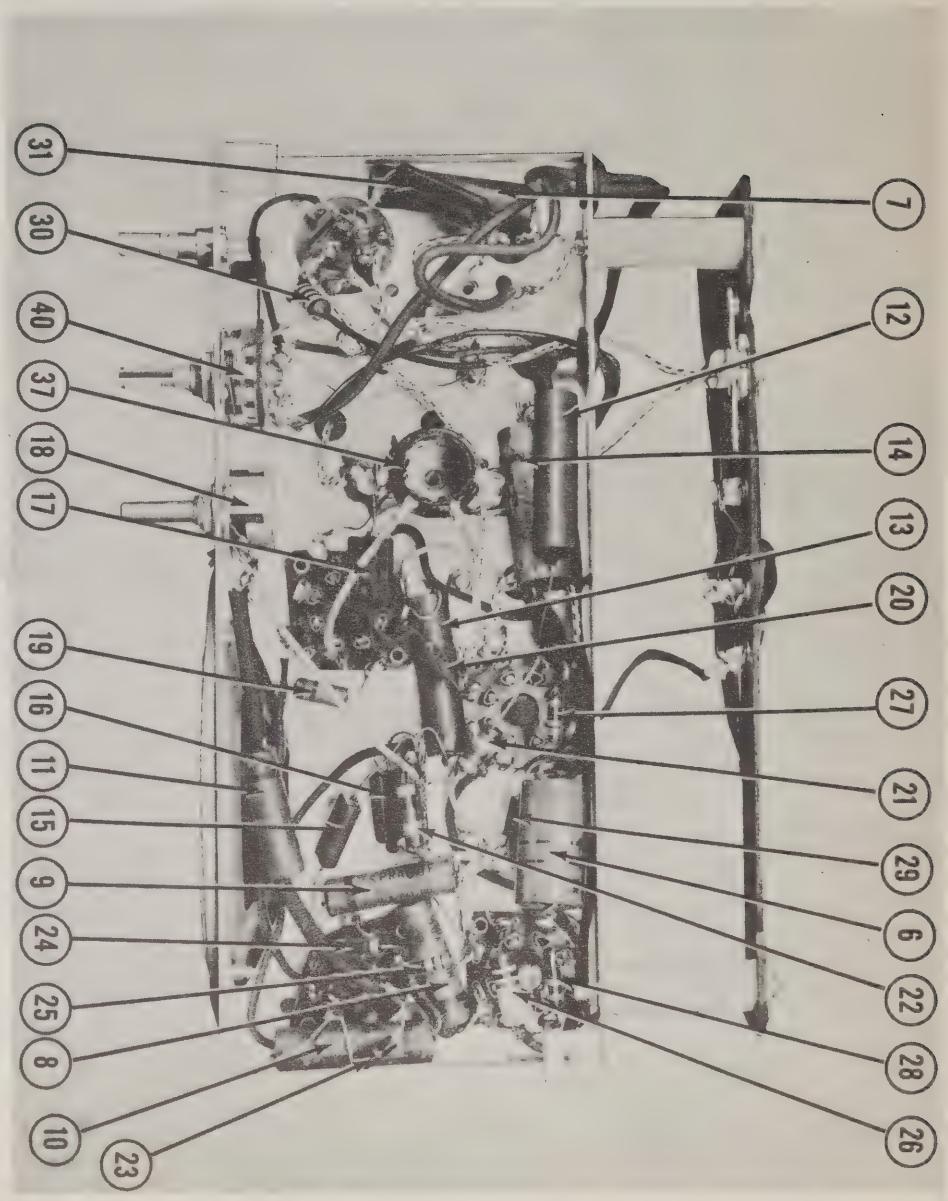
MISCELLANEOUS

ITEM No.	PART NAME	AIRCASTLE PART No.	NOTES
40	Power Switch	SW-3	4 Pole 3 Position
41	Rectifier	SR-1	Selenium
42	Tuning Cap.	GC-2	2 Gang Var. Cap.
A5	Trimmer Cap.	TC-6	Osc. Adj.
A6	" "	TC-7	Ant. Adj.

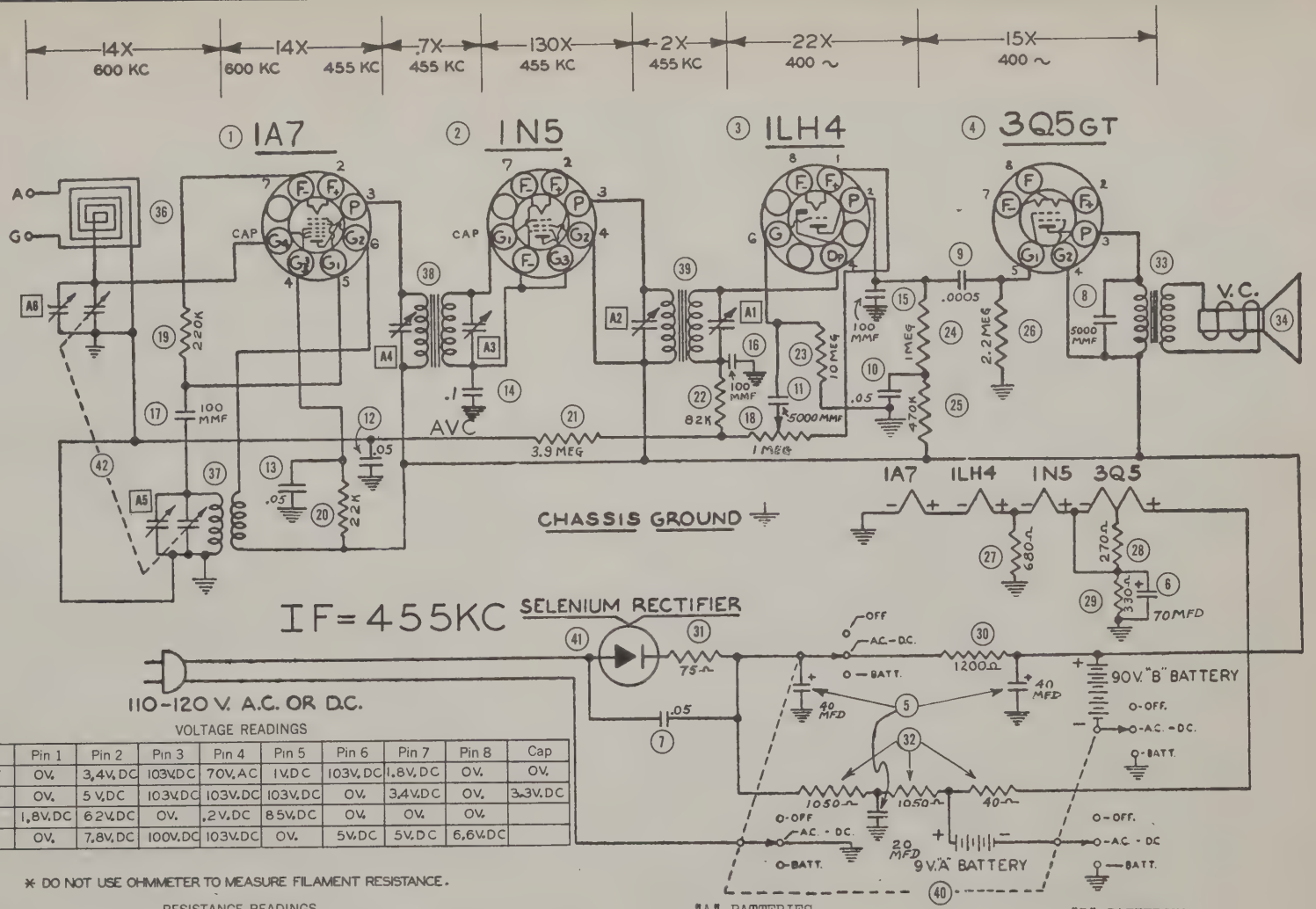


DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



AIRCASTLE MODEL 5020



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1A7 GT	0V.	3.4V.DC	103V.DC	70V.AC	1V.DC	103V.DC	1.8V.DC	0V.	0V.
2	1N5 GT	0V.	5 V.DC	103V.DC	103V.DC	103V.DC	0V.	3.4V.DC	0V.	3.3V.DC
3	1LH4	1.8V.DC	62V.DC	0V.	.2V.DC	85V.DC	0V.	0V.	0V.	
4	3Q5	0V.	7.8V.DC	100V.DC	103V.DC	0V.	5V.DC	5V.DC	6.6V.DC	

* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1A7 GT	0Ω	*	2.9KΩ	22KΩ	175KΩ	2.9KΩ	*	INF.	4.2MEG.
2	1N5 GT	0Ω	*	2.9KΩ	2.9KΩ	2.9KΩ	4.2MEG.	*	INF.	35Ω
3	1LH4	*	1.5MEG.	INF.	875KΩ	480KΩ	10MEG.	INF.	0Ω	
4	3Q5	0Ω	*	3.5KΩ	2.9KΩ	2.4MEG.	*	*	*	

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

"A" BATTERIES (2 Required)

Mfgr.	Volts	Type No.
Burgess	4½ "A"	G3
General	4½ "A"	3H3
Bright Star	4½ "A"	361
Usalite	4½ "A"	683
Rayovac	4½ "A"	P83A
Eveready	4½ "A"	746

"B" BATTERIES (2 Required)

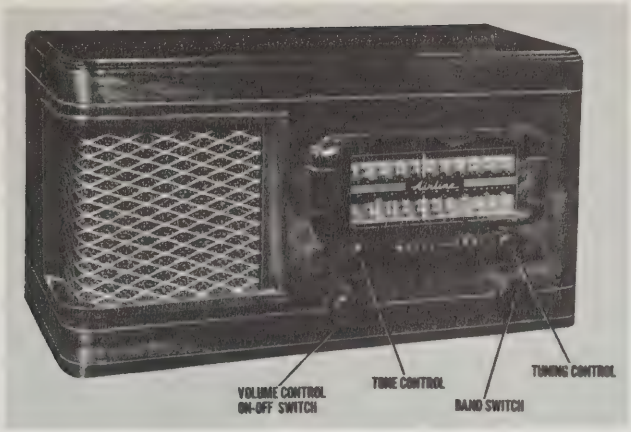
Mfgr.	Volts	Type No.
Burgess	45 "B"	M30
General	45 "B"	W30B
Bright Star	45 "B"	3033
Usalite	45 "B"	640
Rayovac	45 "B"	P7830
Eveready	45 "B"	482

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

476-3

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



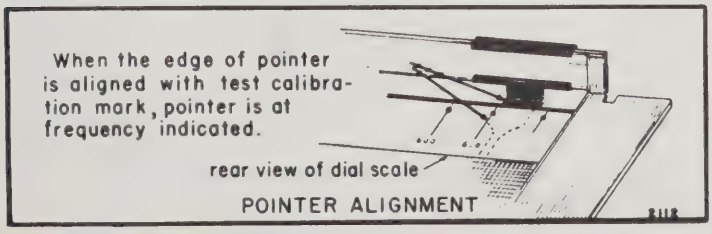
AIRLINE MODEL 64BR-1208A

TRADE NAME	Airline, Models 64BR-1208A, 64BR-2200A
SUPPLIER	Montgomery Ward & Co., 619 Chicago Ave., Chicago, Ill.
TYPE SET	Battery Operated Superheterodyne with Pushbutton Tuning
TUBES (FIVE)	Types, 1A7GT/G Converter, 1N5GT/G 1st IF Amp., 1N5GT/G 2nd IF Amp., 1H5GT/G Det.-AVC-AF, 3Q5GT/G Power Output.
RATING	300 MA @ 1.5 Volts DC & 13 MA @ 90 Volts DC
POWER SUPPLY	1½ Volt "A" Battery & 90 Volt "B" Battery in Pack Form
TUNING RANGE—BROADCAST	535-1720KC **SHORT WAVE** 5.6-18.1 MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap fully closed and set pointer completely to left. Reference marks are on back of dial backplate. When setting dial to these points refer to sketch of view of dial backplate. Volume control at maximum position. Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to grid cap. of 1N5GT (3). Low side to chassis.	455KC	BC	Tuning cap. fully open.	Across voice coil	A1,A2.	Adjust for maximum output
.1 MFD.	High side to grid cap. of 1N5GT (2). Low side to chassis.	"	"	"	"	A3,A4.	" " " "
.1 MFD.	High side to grid cap. 1A7GT. Low side to chassis.	"	"	"	"	A5,A6.	" " " "
400Ω	High side to ext. lead. Low side to ext. gnd. lead.	18.1MC	SW	"	"	A7.	" " " "
400Ω	"	16MC	"	Tune for maximum output.	"	A8.	" " " "
400Ω	"	6MC	"	"	"	A9.	Rock variable and adjust for maximum output. Repeat last three steps.
200MMFD	"	1720KC	BC	Tuning cap. fully open.	"	A10.	Adjust for maximum output
200MMFD.	"	1500KC	"	Tune for maximum output.	"	A11	"
200MMFD.	"	600KC	"	"	"	A12	Rock variable and adjust for maximum output. Repeat last three steps.


When the edge of pointer is aligned with test calibration mark, pointer is at frequency indicated.
rear view of dial scale
POINTER ALIGNMENT

PUSHBUTTON ALIGNMENT

1. Turn receiver on and allow it to warm up for about 15 minutes.
2. Pull out all buttons until they release with a snap.
3. Tune in desired station with manual tuning control. Hold the manual tuning control on station and push the desired pushbutton in all the way.
4. To set up the remaining buttons follow the same procedure as outlined above.

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AIRLINE
MODEL 64BR-1208A, 64BR-2200A

AIRLINE
MODEL 64BR-1208A, 64BR-2200A

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		AIRLINE PART No.	STANDARD REPLACEMENT		
1	Converter	1A7GT/G	1A7GT/G	7Z	
2	1st IF Amp.	1N5GT/G	1N5GT/G	5Y	
3	2nd IF Amp.	1N5GT/G	1N5GT/G	5Y	
4	Det.-AVC-AF	1H5GT/G	1H5GT/G	5Z	
5	Power Output	3Q5GT/G	3Q5GT/G	7AP	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	AIRLINE PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	
6	10	150	BE119130	UT-121	PRS150-12	BR1215	TC42	M-10-150	Pwr. Supp. Bypass
7	.004	600	BE10071	TC-24	684-004	DT6D4	TP407	S-6-004	Output Plate Bypass
8	.01	600	BE10087	TC-11	684-01	DT6S1	TP410	S-6-01	Tone Compensation
9	.01	400	BE10011	TC-11	484-01	DT4S1	TP421	S-4-01	Audio Coupling
10	.006	600	BE10019	TC-26	684-006	DT6D6	TP409	S-6-006	" "
11	.1	200	BE10020	TC-1	484-.1	DT4P1	TP428	S-4-1	2nd IF Screen Bypass
12	.25	200	BE1006	TC-2	484-.25	DT4P25	TP430	S-4-25	Pwr. Supp. Bypass
13	.05	200	BE10022	TC-15	484-05	DT4S5	TP426	S-4-05	1st IF Grid Filter
14	.1	200	BE10020	TC-1	484-.1	DT4P1	TP428	S-4-1	Conv. Screen Bypass
15	.25	200	BE1006	TC-2	484-.25	DT4P25	TP430	S-4-25	Conv. Fil. Bypass
16	.05	120	BE100128	TC-15	484-05	DT4S5	TP426	S-4-05	AVC Filter
17	.1	120	BE100133	TC-1	484-.1	DT4P1	TP428	S-4-1	Osc. Feedback
18	200	500	BE12921	1FM-32	1468-0002	5W5T2	MC237	MO.5-32	Audio Plate Bypass
19A	100		BE129161	1FM-31	1468-0001	5W5T1	MC235	MO.5-31	Diode Filter
B	100			1FM-31	1468-0001	5W5T1	MC235	MO.5-31	" "
20	50	500	BE12939	1FM-45	1468-00005	5W5Q5	MC225	MO.5-45	Osc. Grid Capacitor
21	100	500	BE1295	1FM-31	1468-0001	5W5T1	MC235	MO.5-31	Ant. Coil Bypass

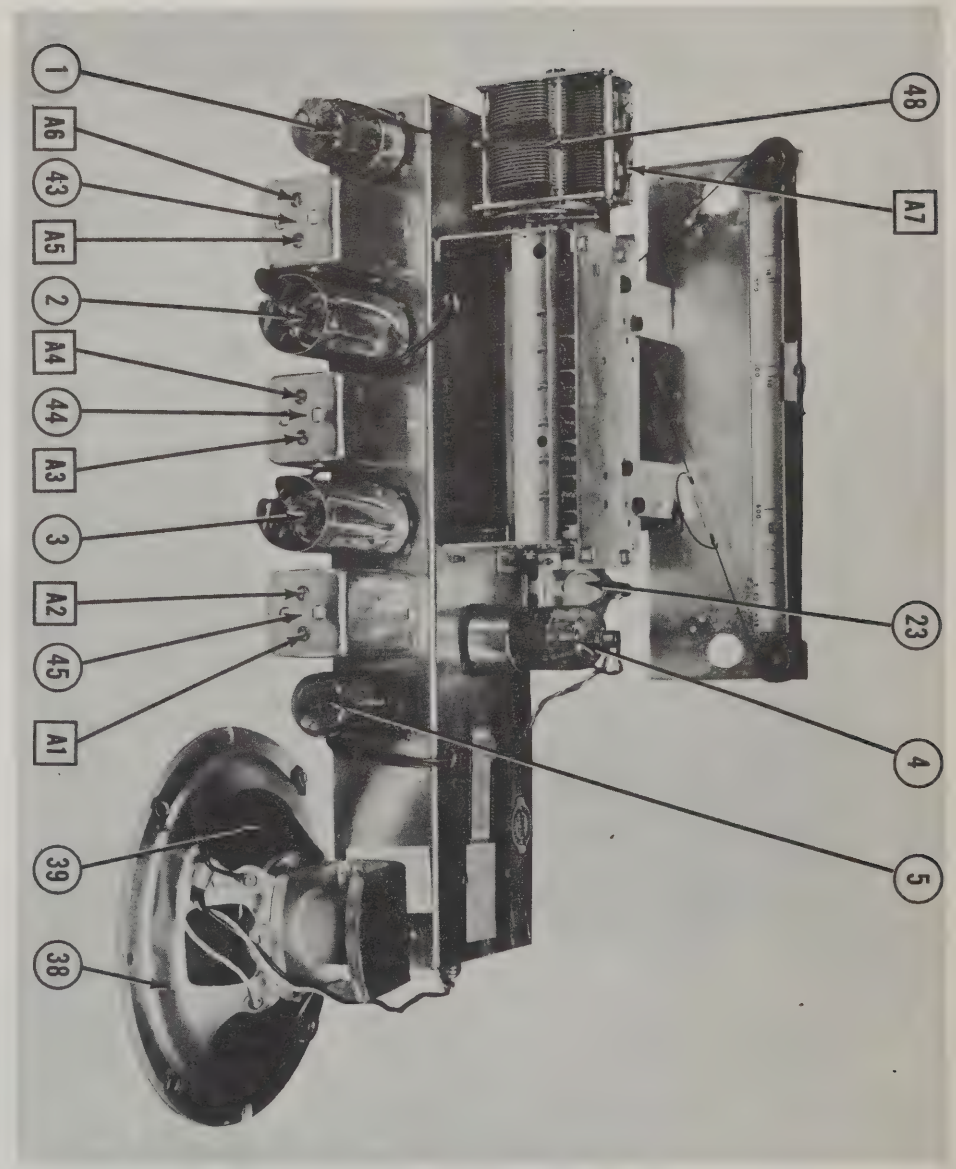
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	AIRLINE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
22A	250KΩ	1	BE101257	MK400	D13-130	AM-64-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 22A per instructions
C	Switch		" "	M27	42	SW-A2	" " " " "
23A	500KΩ	1	BE101264	MK401	D13-133	AM-60-Z	Tone Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 23A per instructions

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	AIRLINE PART No.	IRC PART No.	
24	220KΩ	½	BEA-9B1-27	BTS-220K	Red-Red-Yl. Oscillator Grid
25	47KΩ	½	BEA-9B1-23	BTS-47K	Yl.-Vi.-Or. Converter Screen Dropping
26	1 Meg.	½	BEA-9B1-31	BTS-1 Meg.	Br.-Blk.-Grn. Bias Network
27	150Ω	½	BEA-9B1-8	BW-½-150	Br.-Grn.-Br. Bias Network
28	330Ω	½	BEA-9B1-10	BW-½-330	Or.-Or.-Br. Bias Network
29	4.7 Meg.	½	BEA-9B1-35	BTS-4.7 Meg.	Yl.-Vi.-Grn. AVC Network
30	2.2 Meg.	½	BEA-9B1-33	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
31	3300Ω	½	BEA-9B1-16	BTS-3300	Or.-Or.-Red Decoupling
32	47KΩ	½	BEA-9B1-23	BTS-47K	Yl.-Vi.-Or. Diode RF Filter
33	4.7 Meg.	½	BEA-9B1-35	BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
34	470KΩ	½	BEA-9B1-29	BTS-470K	Yl.-Vi.-Yl. AF Plate Load
35	1 Meg.	½	BEA-9B1-31	BTS-1 Meg.	Br.-Blk.-Grn. Output Grid
36	.56Ω	3	BE130346	BW-3-.56	Grn.-Blue-Silver Battery Saver

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA AIRLINE PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
37	8000Ω	3.6Ω	450Ω	.6Ω	BE105119B	A-3878*	T22S47*		*Drill one new mounting hole.

SPEAKER

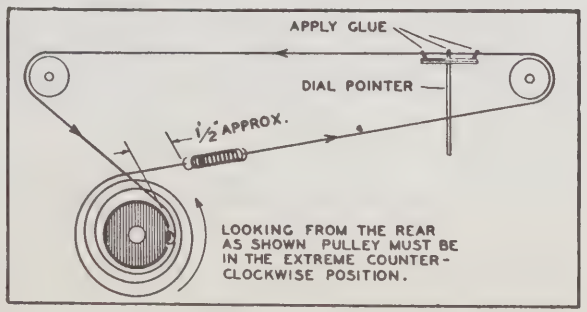
ITEM No.	RATINGS		REPLACEMENT DATA AIRLINE PART No.	JENSEN PART No.		INSTALLATION NOTES
38A	FIELD	VC IMP.	BE114245	ST-108		
B	PM	3.6Ω	BEC-18A-11471	Mod. P6-X		Alternate 8" speaker used in 2200A.
	CONE DIA.	VC DIA.				
39	6¼"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

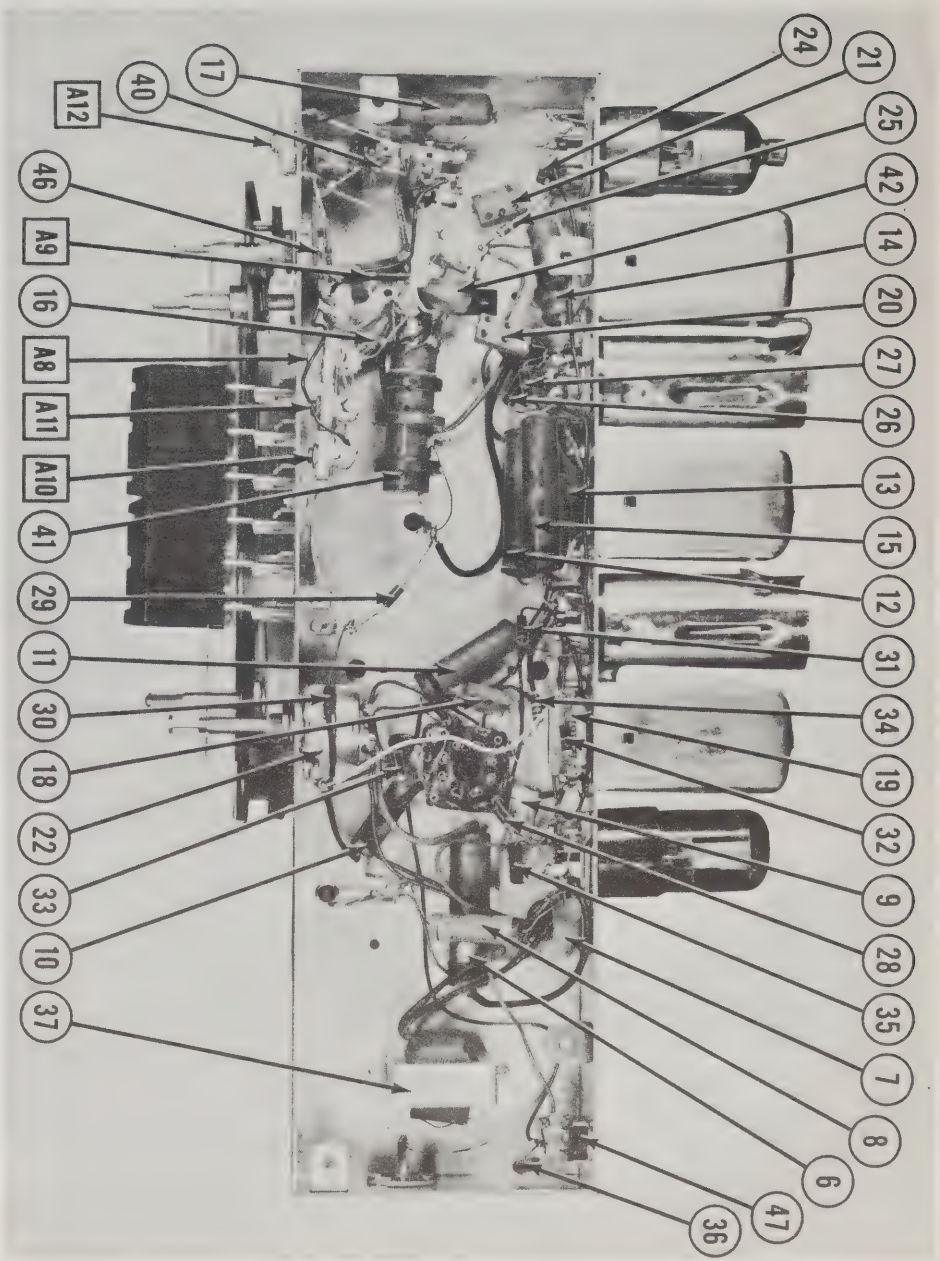
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA AIRLINE PART No.	MEISSNER PART No.	
40A	BC Ant. Coil	18Ω	4Ω	BE111248		40A & 40B wound on same form.
B	SW " "	.5Ω	0Ω			
41A	BC Osc. Coil	2Ω	7.5Ω	BE110183		41A & 41B wound on same form
B	SW " "	.5Ω	.5Ω			
42	RF Choke		26Ω	BE1233		
43	Input IF	27Ω	28Ω	BE108204	16-6658	
44	Inter IF	28Ω	27Ω	BE108204B	16-6659	
45	Output IF	28Ω	28Ω	BE108188B	16-6660	

MISCELLANEOUS

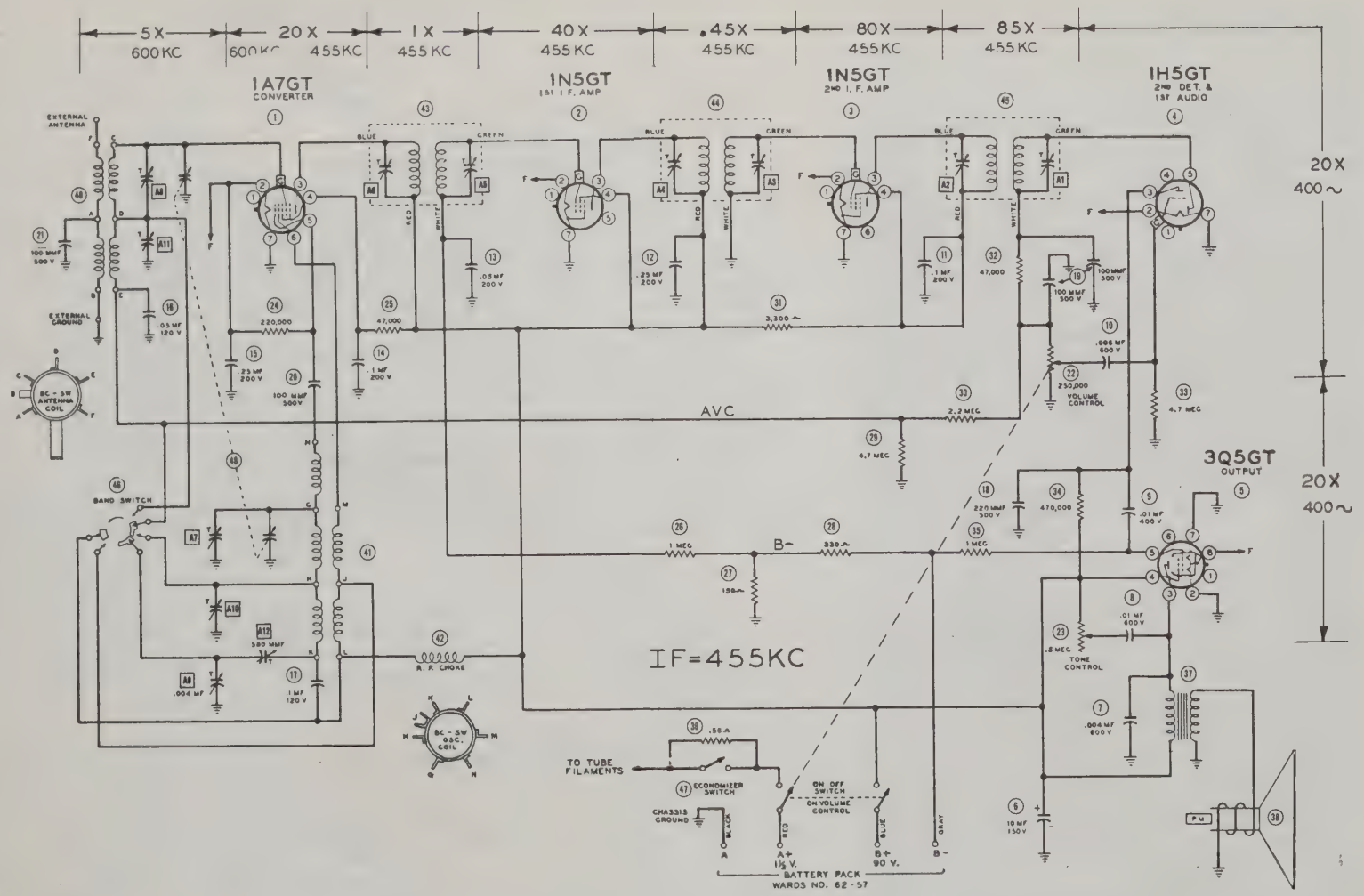
ITEM No.	PART NAME	AIRLINE PART No.	NOTES
46	Bandswitch		
47	Switch		Economizer
48	2 Gang Var. Cap.	BEB-8A-10243	(23-478MMF each section)
	Battery Pack	62-57	1½ V "A" & 90V "B"
A10			BC Osc. Adj.
A11	Trimmer Strip	BE124171	BC Ant. Adj.
A8			SW Ant. Adj.
A12	Trimmer	BE124173	BC Osc. Padder (420-780 MMF)
A9	"	BE129125	SW Osc. Padder (4000-4350 MMF)
	Dial Scale	BEB-6D-10043	
	Pointer	BE112971	


APPLY GLUE
DIAL POINTER
½" APPROX.
LOOKING FROM THE REAR AS SHOWN PULLEY MUST BE IN THE EXTREME COUNTER-CLOCKWISE POSITION.

CHASSIS—BOTTOM VIEW



AIRLINE MODELS
64BR-1208, 64BR-2200A



Pin No.	1A7GT/G Volt.	1A7GT/G Res	1N5GT/G Volt	1N5GT/G Res
1	0V.	0 Ω	0V.	0 Ω
2	1.6V.DC	*	1.8V.DC	*
3	88V.DC	65K Ω	88V.DC	65K Ω
4	50V.DC	120K Ω	88V.DC	65K Ω
5	-4V.DC	210K Ω	-2V.DC	140 Ω
6	88V.DC	65K Ω	-1V.DC	1 MEG.
7	0V.	*	0V.	*
8	0V.	INF.	0V.	INF.
Cap	0V.	1.5 MEG.	-1V.DC	1 MEG.

Pin No	1N5GT/G Volt	1N5GT/G Res	1H5GT/G Volt	1H5GT/G Res
1	0V.	0 Ω	0V.	0 Ω
2	1.6V.DC	*	1.8V.DC	*
3	85V.DC	65K Ω	70V.DC	510K Ω
4	85V.DC	65K Ω	-2V.DC	140 Ω
5	0V.	INF.	-3V.DC	280K Ω
6	88V.DC	65K Ω	0V.	INF.
7	0V.	*	0V.	*
8	0V.	INF.	0V.	4 MEG.
Cap	0V.	25 Ω	0V.	4 MEG.

Pin No	3Q5GT/G Volt	3Q5GT/G Res
1	0V.	0 Ω
2	0V.	*
3	88V.DC	65K Ω
4	88V.DC	65K Ω
5	-5V.DC	1 MEG.
6	5.8V.DC	400 Ω
7	0V.	*
8	116V.DC	*
Cap		

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

476-4

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The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

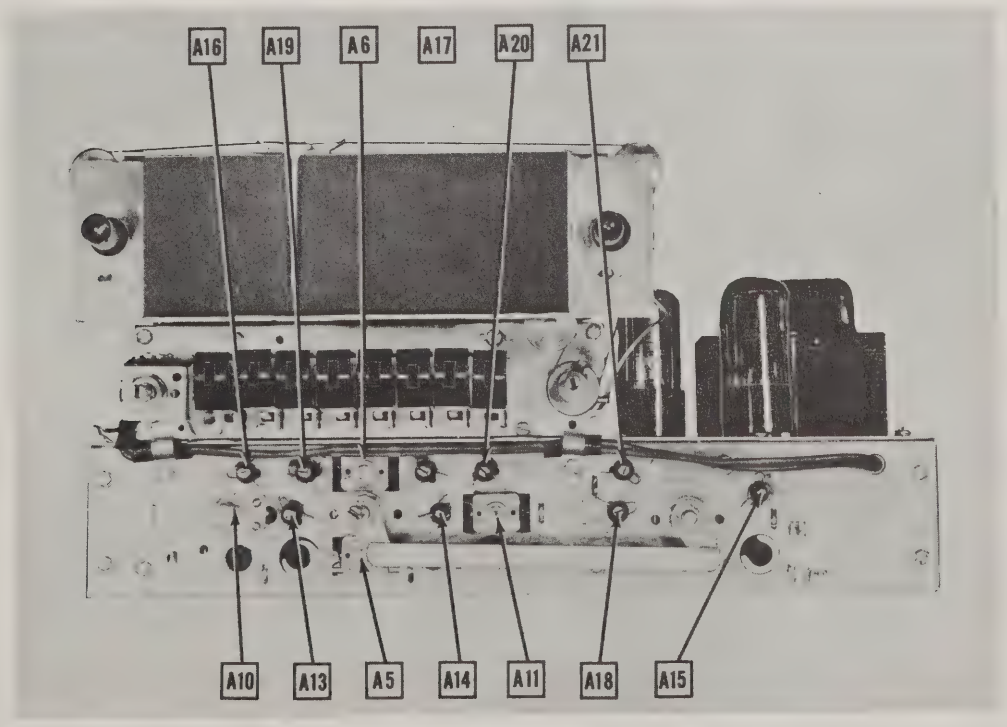
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

TRADE NAME	Airline, Model 64BR-1808A
SUPPLIER	Montgomery Ward & Co., 619 Chicago Ave., Chicago, Ill.
TYPE SET	AC Operated Multi-Band Superheterodyne with Phono Provisions & Loop Antenna
TUBES (EIGHT)	Types, 6SK7GT RF Amp., 6SA7 Converter, 6SK7GT IF Amp., 6SQ7GT/G Det.-AVC-AF, 6J5GT Phase Inverter, (2) 6K6GT/G Power Output, 5Y3GT/G Rectifier.
POWER SUPPLY	105-125 Volts AC — RATING .700 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1600KC — SHORT WAVE 5.96-6.19MC, 9.1-10MC, 11.45-12.16MC, 14.94-15.46MC.

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, rotate manual tuning control until core bar is 1/32" from two rod guide angles. Set pointer per sketch at 1600KC reference mark on back of dial backplate. Rotate cores of three BC coils until end of core is 1-5/32" from end of coil form. Rotate the three 9MC coil cores until this dimension is 1-1/16" from end of coil form. (As per sketch). Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control at maximum position. Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to Pin 8 (grid) of 6SA7. Low side to chassis.	455KC	BC	1600KC	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output
200MMFD.	High side to ext. lead. Low side to ext. gnd.lead.	1600KC	"	1600KC Reference mark on back of dial backplate.	"	A5,A6, A7.	" " " "
200MMFD.	"	1400KC	"	Tune for maximum output.	"	A8,A9	Adjust slugs for maximum output. Recheck A5, A6, A7, at 1600KC.
400Ω	"	9.6MC	31 meter	9.6MC reference mark on back of dial backplate.	"	A10,A11 A12.	Adjust for maximum output
400Ω	"	6.1MC	49 meter	6.1 reference on back of dial backplate.	"	A13,A14, A15.	"
400Ω	"	11.8MC	25 meter	11.8 reference mark on back of dial backplate.	"	A16,A17 A18.	"
400Ω	"	15.2MC	19 meter	15.2 reference mark on back of dial backplate.	"	A19,A20, A21	"



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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: AIRLINE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	6SK7GT	6SK7GT	8N	
2	Converter	6SA7	6SA7	8R	
3	IF Amp.	6SK7GT	6SK7GT	8N	
4	Det.-AVC-AF	6SQ7GT/G	6SQ7GT/G	8Q	
5	Phase Inverter	6J5GT	6J5GT	6Q	
6	Power Output	6K6GT/G	6K6GT/G	7S	
7	Power Output	6K6GT/G	6K6GT/G	7S	
8	Rectifier	5Y3GT/G	5Y3GT/G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIRLINE PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
9A	20	450	BEA8C10272	EL-344	AF222J	UP6CJ47	FP234	DY-3x20-450	■ Filter
B	10	450							▲ "
C	10	450			PRS450-10		TC72		"
10	.05	600	BEC8J11388	TC-15	684-05	DT6S5	TP415	TM-6-05	Line Bypass
11	.002	600	BEC8D10778	TC-22	684-002	DT6D2	TP405	S-6-002	Output Plate Bypass
12	.02	400	BEC8D10774	TC-12	484-02	DT4S2	TP423	S-4-02	Audio Coupling
13	.02	400	BEC8D10774	TC-12	484-02	DT4S2	TP423	S-4-02	" "
14	.006	600	BEC8D10785	TC-26	684-002	DT6D6	TP409	S-6-006	" "
15	.05	200	BEC8D10770	TC-15	484-05	DT4S5	TP426	S-4-05	IF Screen Bypass
16	.05	200	BEC8D10770	TC-15	484-05	DT4S5	TP426	S-4-05	AVC Filter
17	.1	200	BEC8D10771	TC-1	484-.1	DT4P1	TP428	S-4-1	RF Cath. Bypass
18	.1	400	BEC8D10760	TC-1	484-.1	DT4P1	TP428	S-4-1	RF Bypass Pwr. Supp.
19	.1	400	BEC8D10760	TC-1	484-.1	DT4P1	TP428	S-4-1	IF Cathode Bypass
20	.01	400	BEC8D10761	TC-11	484-01	DT4S1	TP421	S-4-01	Tone Compensation
21	220	500	BEC8F310	1FM-32	1468-0002	5W5T2	MC237	MO.5-322	Audio Plate Bypass
22	220	500	BEC8F310	1FM-32	1468-0002	5W5T2	MC237	MO.5-322	Diode Filter
23	220	500	BEC8F310	1FM-32	1468-0002	5W5T2	MC237	MO.5-322	" "
24	470	500	BEB8F3121	1FM-35	1468-0005	5W5T5	MC245	MO.5-347	RF Coupling
25	10	500	BEB8F5101	MS-41	1469-00001	5R5Q1	MCB215	MOS.5-41	" "
26	470	500	BEB8F3121	1FM-35	1468-0005	5W5T5	MC245	MO.5-347	" "
27	47	500	BEB8F3109	1FM-45	1468-00005	5W5Q5	MC225	MO.5-447	Osc. Grid Capacitor
28	200	500	BEB8F10763	MS-32	1469-0002	5R5T2	MCB237	MOS.5-32	Fixed Trimmer
29	2000	500	BEB8F10767	1FM-22	1467-002	1W5D2	MC457	MW.5-22	RF Coupling
30	470	500	BEB8F3121	1FM-35	1468-0005	5W5T5	MC245	MO.5-347	Ant. Coupling

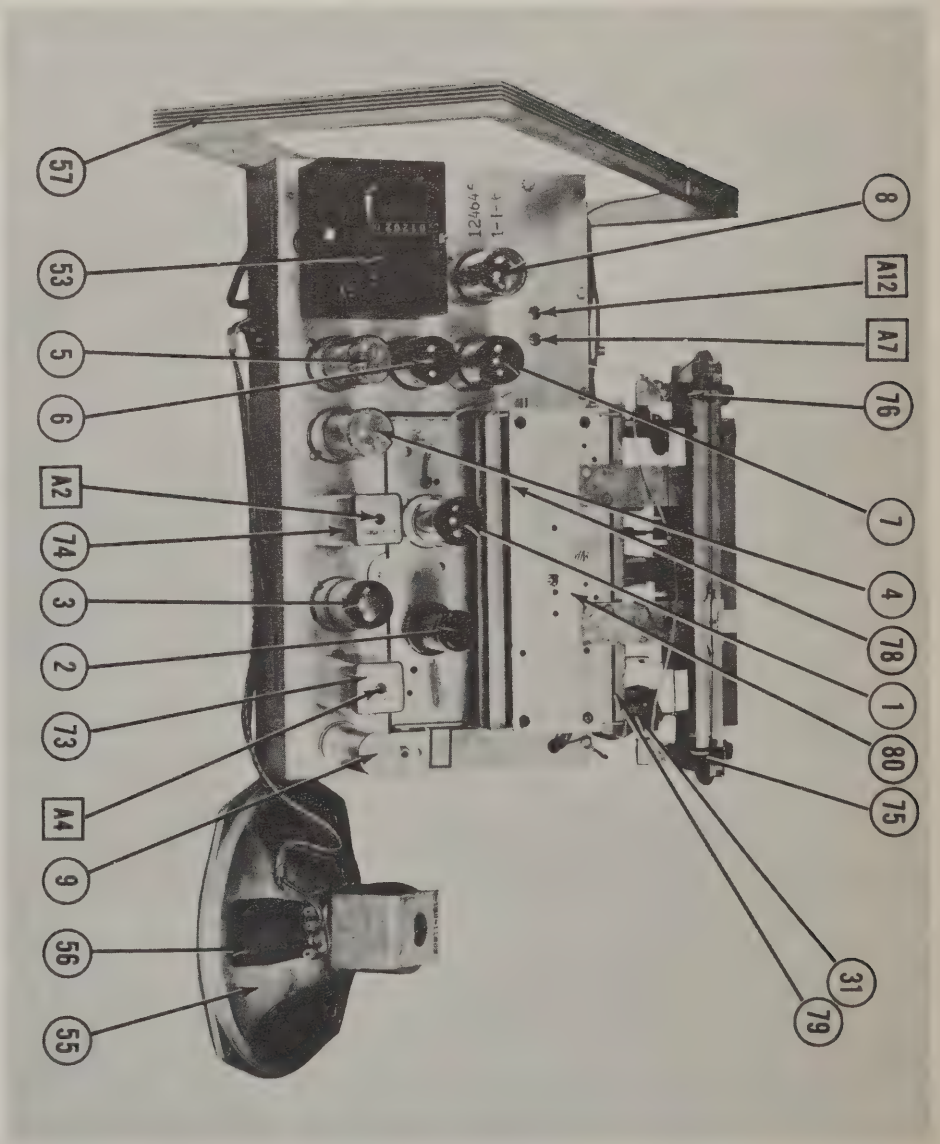
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRLINE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
31A	500KΩ	1	BEA-10A-10810	MK401	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 31A per instructions.
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRLINE PART No.	IRC PART No.	IDENTIFICATION CODES
32	1 Meg.	½	BEC-9B1-31	BTS-1 Meg.	Br.-Blk.-Grn. RF Grid
33	270Ω	½	BEC-9B1-55	BW-½-270	Red-Vi.-Br. RF Cathode
34	1500Ω	½	BEC-9B1-64	BTS-1500	Br.-Grn.-Red RF Plate Load
35	1 Meg.	½	BEC-9B1-31	BTS-1 Meg.	Br.-Blk.-Grn. Converter Grid
36	47Ω	½	BEC-9B1-46	BW-½-47	Yl.-Vi.-Blk. Parasitic Suppressor
37	27KΩ	½	BEC-9B1-79	BTS-27K	Red-Vi.-Or. Oscillator Grid
38	27KΩ	½	BEC-9B1-1987	BTS-27K	Red-Vi.-Or. Antenna Coil Shunt
39	27KΩ	½	BEC-9B1-1987	BTS-27K	Red-Vi.-Or. External Antenna Loading
40	12.5KΩ	3	BE-10662	AB-12500	Screen Dropping

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	AIRLINE PART No.	IRC PART No.	
41	47KΩ	½	BEC-9B1-23	BTS-47K	Yl.-Vi.-Or. Diode RF Filter
42	560Ω	½	BEC-9B1-59	BTS-560	Grn.-Blue-Br. IF Cathode
43	2.2 Meg.	½	BEC-9B1-33	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
44	10 Meg.	½	BEC-9B1-37	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
45	270KΩ	½	BEC-9B1-2091	BTS-270K	Red-Vi.-Yl. AF Plate Load
46	33KΩ	½	BEC-9B1-22	BTS-33K	Or.-Or.-Or. Tone Compensation
47	47KΩ	½	BEC-9B1-82	BTS-47K	Yl.-Vi.-Or. Phase Inverter Plate Load
48	100KΩ	½	BEC-9B1-86	BTS-100K	Br.-Blk.-Yl. Phase Inverter Grid
49	470KΩ	½	BEC-9B1-94	BTS-470K	Yl.-Vi.-Yl. Output Grid
50	470KΩ	½	BEC-9B1-29	BTS-470K	Yl.-Vi.-Yl. Output Grid
51	270Ω	1	BEC-9B1-85	BW-1-270	Red-Vi.-Br. Output Cathode
52	4700Ω	½	BEC-9B1-70	BTS-4700	Yl.-Vi.-Red Phase Inverter Cathode

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	AIRLINE PART No.	STANCOR PART No.	THORDARSON PART No.	INSTALLATION NOTES
53	117V AC @ .7A	600V CT @ .096A	4.9V AC @ 1.8A	6.3V AC @ 2.8A	BE-104202D	P-6312*	T22R04	*Drill new mounting holes.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AIRLINE PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
54	12600Ω CT	3.5Ω	670Ω CT	.4Ω	BEB-12C-10234-1	A-3850	T22S48		

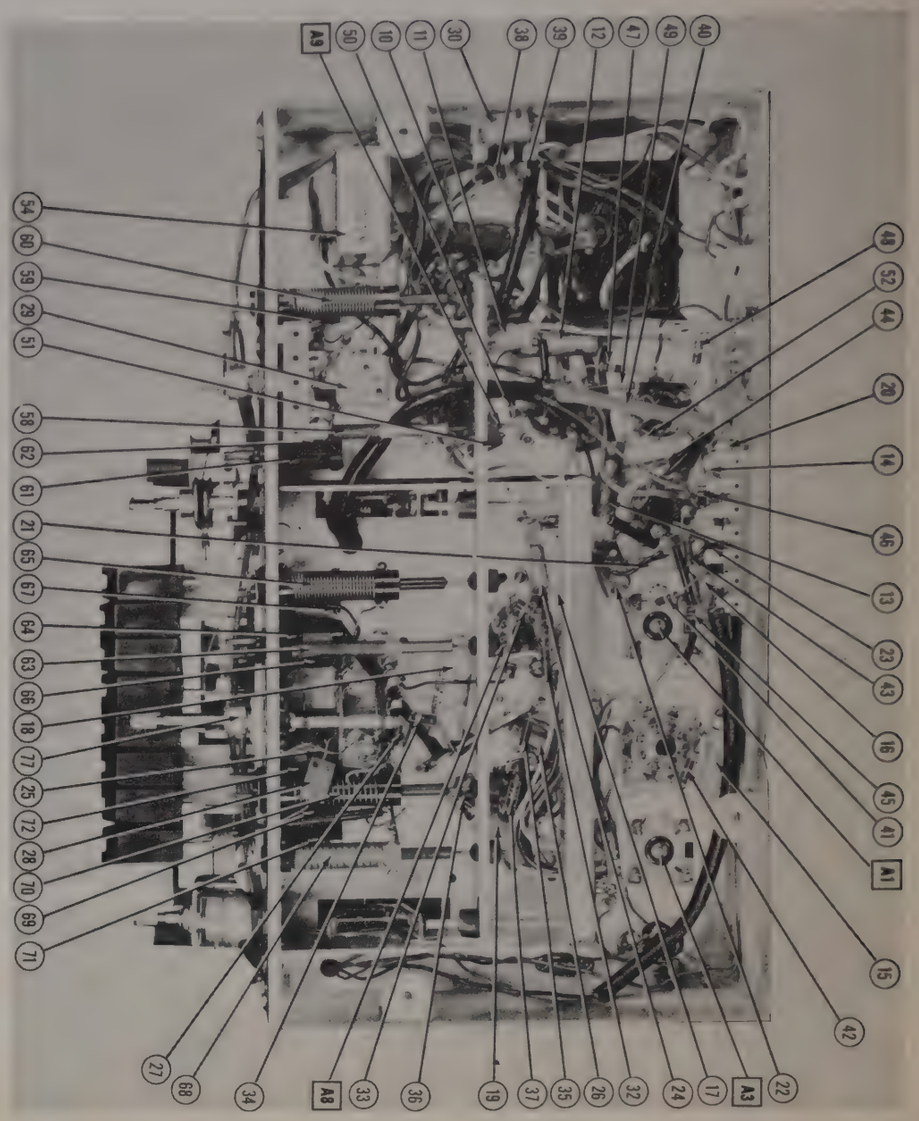
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			AIRLINE PART No.	JENSEN PART No.		
	FIELD RES.	VC IMP.				
55	580Ω	3.5Ω	BEC-18B-11005			
	CONE DIA.	VC DIA.				
56	7-3/8"	3/4"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	AIRLINE PART No.	MEISSNER PART No.
57	Loop Ant.		.1Ω	BED-212-11429	
58	BC Ant.Coil		6.5Ω	BE-111195	
59	6MC " "		.1Ω	BE-111189	
60	9MC " "	.1Ω	0Ω	BE-111190	
61	12MC " "		0Ω	BE-111191	
62	15MC " "		0Ω	BE-111192	
63	BC RF Coil		6Ω	BE-10962	
64	6MC " "		.1Ω	BE-10958	
65	9MC " "	1Ω	0Ω	BE-10959	
66	12MC " "		0Ω	BE-10960	
67	15MC " "		0Ω	BE-10961	
68	BC Osc. Coil	.5Ω	6.5Ω	BE-110161	
69	6MC " "		.1Ω	BE-110156	
70	9MC " "		0Ω	BE-110157	
71	12MC " "		0Ω	BE-110158	
72	15MC " "		0Ω	BE-110159	
73	Input IF	22Ω	21Ω	BEB-203-1813-2	
74	Output IF	22Ω	22Ω	BEB-203-1813-3	

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

DIAL LIGHT

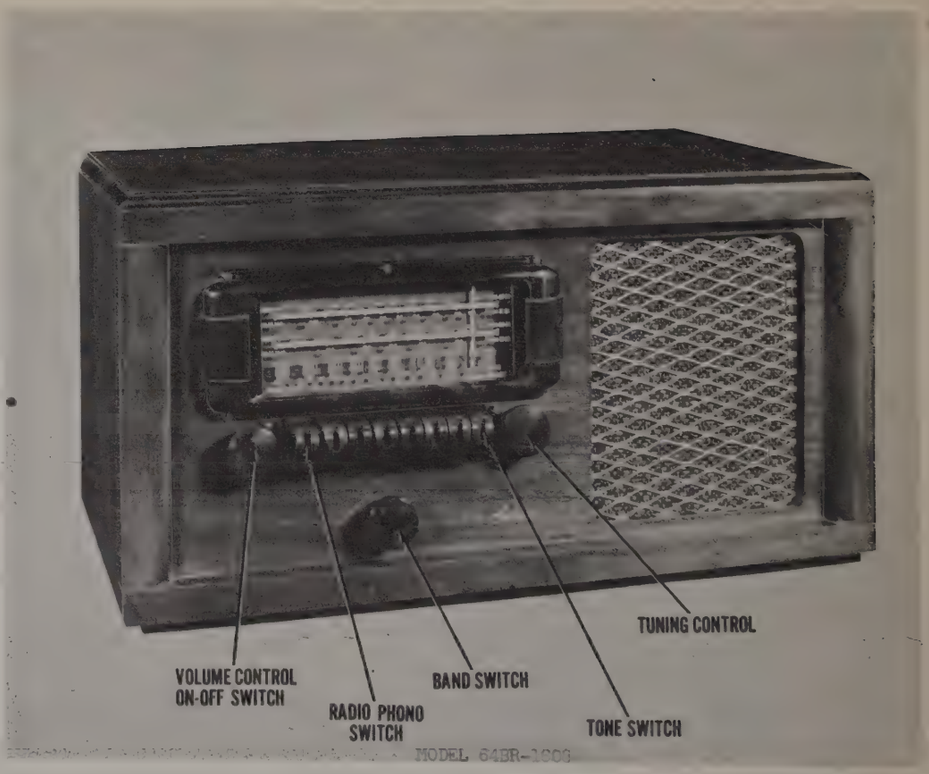
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					AIRLINE PART No.		
75	Bayonet	6-8	0.25	Blue	BE10794		Type 44
76	"	"	"	"	"		" "

MISCELLANEOUS

ITEM No.	PART NAME	AIRLINE PART No.	NOTES
77	Bandswitch	BEB-20A-10526	Ant. Wafer (BEB-20A-11053 Alternate)
		BEB-20A-10527	RF Osc. Wafer (BEB-20A-11054 Alternate)
78	Tone Switch	BEA-20F-7322-1	3 Position
79	Radio-Phono Sw.	BE-125129	
80	Pushbutton Assy.		
	Dial Scale	BEC-6D-10897	
	Dial Pointer	BEB-2G-10511	
A7 A12	Dual Trimmer	BE-124143	BC Ant. (67-123MMF) 9MC Band Ant. (95-175 MMF)
A5	Trimmer	BE-124144	BC Osc. Adj. (15-27 MMF)
A6	"	BEA-8G-7205	BC RF Adj. (120-220MMF)
A10	"	BE-124145	9MC Osc. Adj. (7-35 MMF)
All	"	BEA-8G-7206	9MC RF Adj. (60-110 MMF)

PUSHBUTTON ADJUSTMENTS

1. Turn on receiver and allow it to warm up for about 15 minutes.
2. Pull out all buttons until they release with a snap.
3. Tune in desired stations with manual tuning control and hold the manual tuning control on station and push desired pushbutton in all the way.
4. To set up the remaining pushbuttons follow the same procedure as outlined above.



VOLTAGE AND RESISTANCE TAKEN IN BROADCAST POSITION.

VOLTAGE READINGS

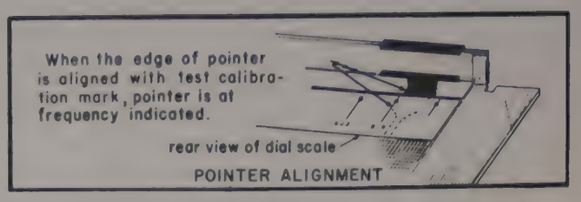
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7GT	OV.	OV.	OV.	-1V.DC	3V.DC	110V.DC	6.3V.AC	260V.DC
2	6SA7	OV.	6.3V.AC	260V.DC	110V.DC	-1.5V.DC	OV.	OV.	-1V.DC
3	6SK7GT	OV.	OV.	4.2V.DC	OV.	4.2V.DC	110V.DC	6.3V.AC	260V.DC
4	6SQ7GT	OV.	-.5V.DC	OV.	-6V.DC	-6V.DC	125V.DC	6.3V.AC	OV.
5	6J5GT	OV.	OV.	180V.DC	OV.	OV.	110V.DC	6.3V.AC	81V.DC
6	6K6GT/G	OV.	OV.	260V.DC	260V.DC	OV.	OV.	6.3V.AC	20V.DC
7	6K6GT/G	OV.	OV.	260V.DC	260V.DC	OV.	OV.	6.3V.AC	20V.DC
8	5Y3GT/G	OV.	340V.DC	OV.	300V.AC	OV.	300V.DC	OV.	340V.DC

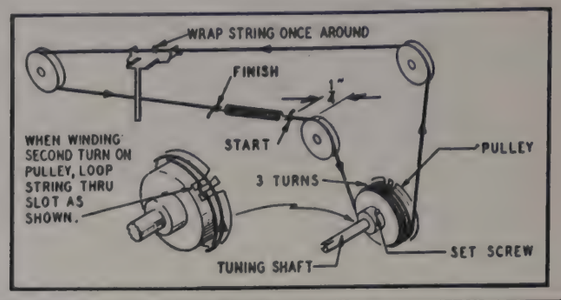
RESISTANCE READINGS

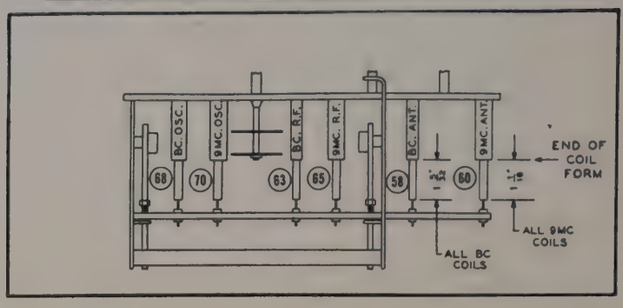
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7GT	0Ω	0Ω	0Ω	3.5MEG.	250Ω	162KΩ	.1Ω	150KΩ
2	6SA7	0Ω	.1Ω	150KΩ	162KΩ	22KΩ	.5Ω	0Ω	3.5MEG.
3	6SK7GT	0Ω	0Ω	490Ω	18Ω	490Ω	162KΩ	.1Ω	150KΩ
4	6SQ7GT	0Ω	10MEG.	0Ω	480KΩ	480KΩ	430Ω	.1Ω	0Ω
5	6J5GT	0Ω	0Ω	220KΩ	INF.	100KΩ	162KΩ	.1Ω	4700Ω
6	6K6GT/G	0Ω	0Ω	150KΩ	150KΩ	570KΩ	INF.	.1Ω	250Ω
7	6K6GT/G	0Ω	0Ω	150KΩ	150KΩ	500KΩ	INF.	.1Ω	250KΩ
8	5Y3GT/G	0Ω	150KΩ	INF.	90Ω	INF.	98Ω	INF.	150KΩ

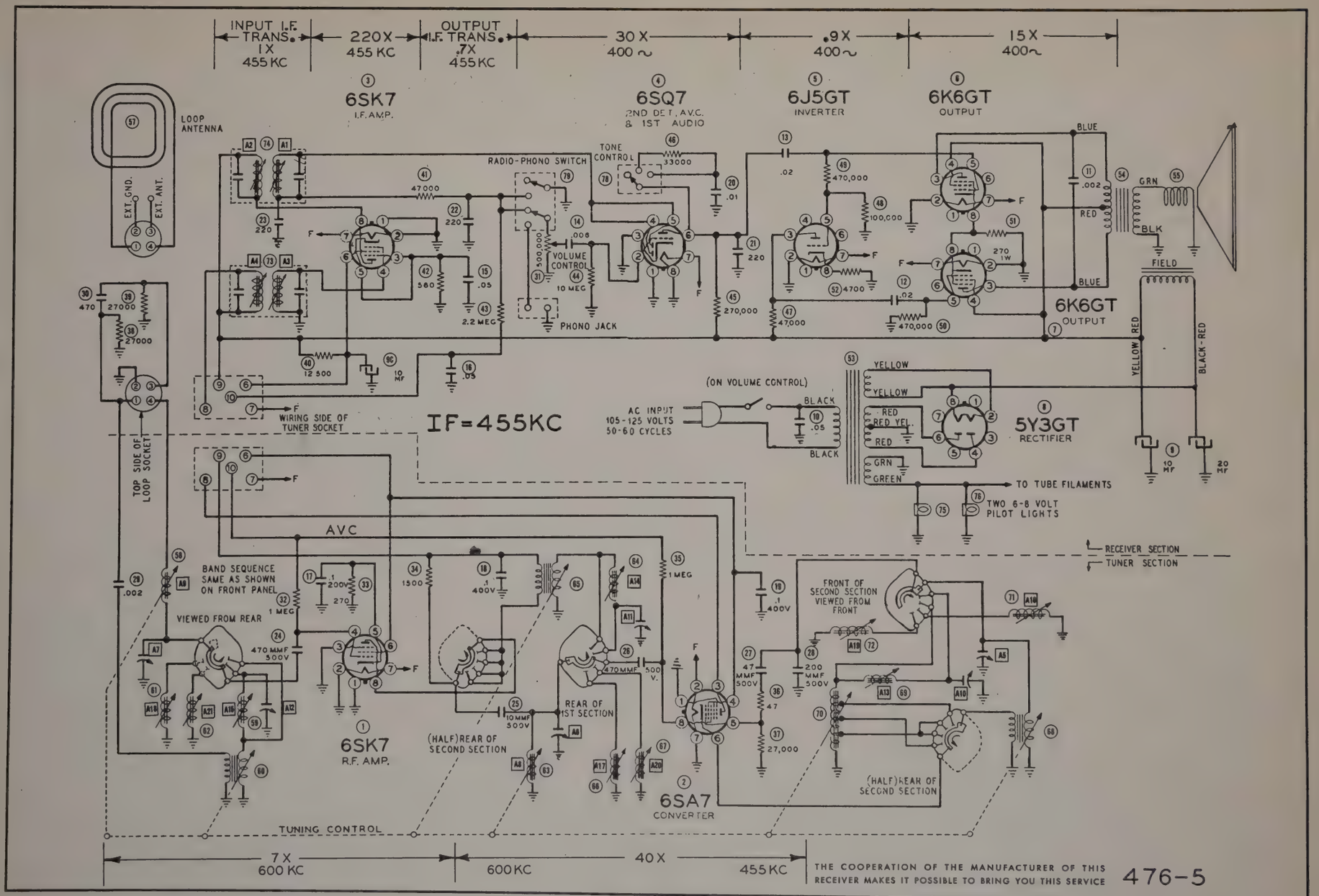
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.


When the edge of pointer is aligned with test calibration mark, pointer is at frequency indicated.
rear view of dial scale
POINTER ALIGNMENT





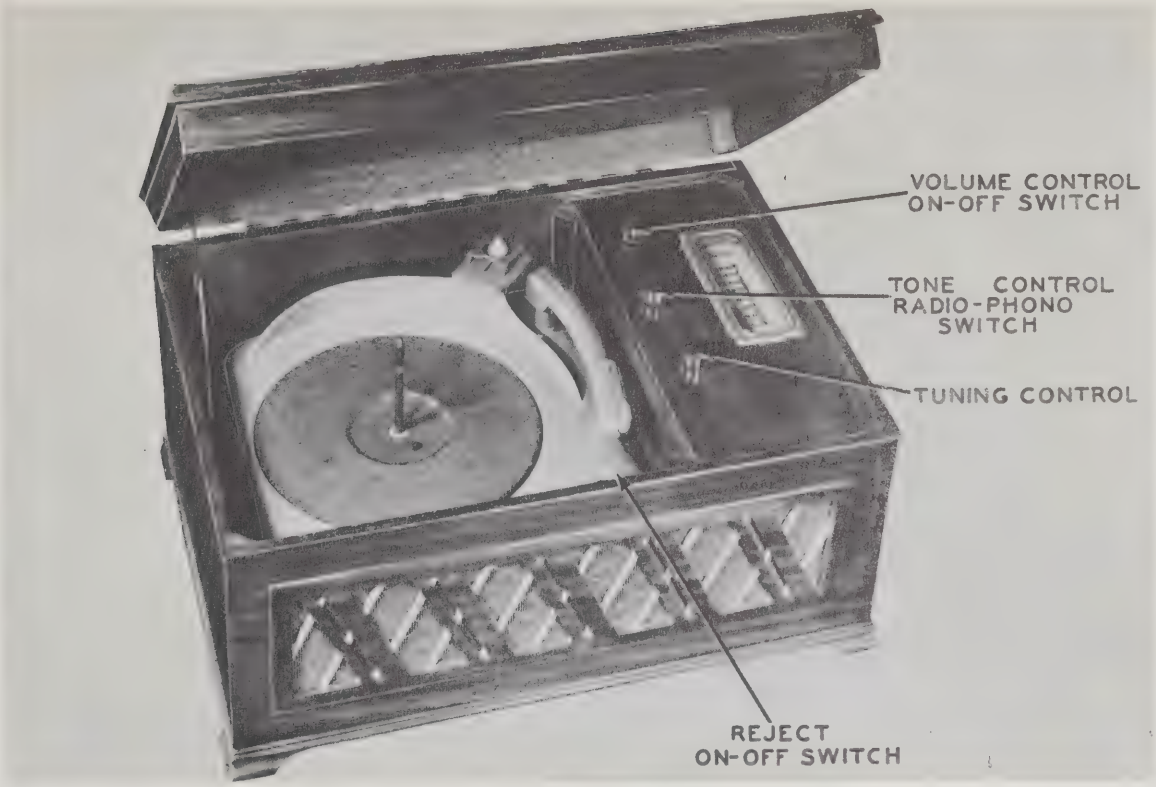


THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

476-5

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

AVIOLA
MODEL 608, 618



AVIOLA MODEL 608

TRADE NAME	Aviola, Models 608, 618
MANUFACTURER	Aviola Radio Corp., Phoenix, Ariz.
TYPE SET	AC Operated Combination Phono-Radio Superheterodyne - Self Contained Loop Antenna
TUBES (SIX)	Types, 12BA6 RF Amp., 12BE6 Converter, 12BA6 IF Amp., 12AT6 Det. AVC-AF, 35L6GT Power Output, 35W4 Rectifier.
POWER SUPPLY	105-125 Volts AC
TUNING RANGE—BROADCAST	540-1625KC RATING .240 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap fully closed and set pointer at the edge of opening in dial. Use isolation tranformer if available. If not, connect a capacitor in series with low side of signal generator to B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
500MMFD	High side to ext. ant. lug. Low side to chassis.	455KC	Tuning cap open.	Across voice coil.	A1,A2, A3,A4.	Adjust for maximum output.
		1400KC	1400KC	"	A5	Place signal generator lead near loop. Adjust for maximum output.
		"	Tune for maximum output.	"	A6	"

DISASSEMBLY INSTRUCTIONS

1. Remove three control knobs from top inside of cabinet.
2. Remove five wood screws holding loop ant. to rear of cabinet.
3. Disconnect three leads to loop ant. Remove loop ant.
4. Disconnect phono-motor plug.
5. Remove phono-pick up plug from chassis.
6. Remove three screws holding chassis mounting board. Slide chassis mounting board out of top slot and remove chassis and board through back of cabinet.
7. Remove four nuts holding speaker. Remove speaker.
8. Remove two bolts holding chassis mounting board to chassis. Remove mounting board.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: AVIOLA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	12BA6	12BA6	7CC	
2	Converter	12BE6	12BE6	7CH	
3	IF Amp.	12BA6	12BA6	7CC	
4	Det.-AVC-AF	12AT6	12AT6	7BT	
5	Power Output	35L6GT/G	35L6GT/G	7AC	
6	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AVIOLA PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	20	150		TA-240	PRSA150-40-	BRD4215	2N514	M-2x40-150	Filter
B	40	150			20				"
8	40	150		UT-401	PRS150-40	BR4015	TC48	M-40-150	"
9	20	25	12105-10	TA-25	PRS25-25	BR202A	TC26	M-25-25	Cath. Bypass
10	.05	400	12002-05	TC-15	484-05	DT4S5	TP426	S-4-05	Line Filter
11	.03	400	12002-03	TC-13	484-03	DT4S3	TP424	S-4-03	Output Plate Bypass
12	.01	400	12002-01	TC-11	484-01	DT4S1	TP421	S-4-01	Audio Coupling
13	.01	400	12002-01	TC-11	484-01	DT4S1	TP421	S-4-01	" "
14	.05	200	12000-05	TC-15	484-05	DT4S5	TP426	S-4-05	AVC Filter
15	.1	200	12000-1	TC-1	484-.1	DT4P1	TP428	S-4-1	Line Isolation
16	.001	600	12004-001	TC-21	684-001	DT6D1	TP404	S-6-001	Ant. Coupling
17	.002	600	12004-002	TC-22	684-002	DT6D2	TP405	S-6-002	Phono Bypass
18	1000	300	12012-1000	1FM-21	1468-001	1W5D1	MC455	MW.5-21	Tone Compensation
19	1000	300	12012-1000	1FM-21	1468-001	1W5D1	MC455	MW.5-21	" "
20	250	500	12010-250	1FM-325	1468-00025	5W5T25	MC240	M0.5-325	Audio Plate Bypass
21	250	500	12010-250	1FM-325	1468-00025	5W5T25	MC240	M0.5-325	IF Bypass Diode
22	50	500	12010-50	1FM-45	1468-00005	5W5Q5	MC225	M0.5-45	Osc. Grid Capacitor
23	100	500	12010-100	1FM-31	1468-0001	5W5T1	MC235	M0.5-31	RF Coupling

CONTROLS

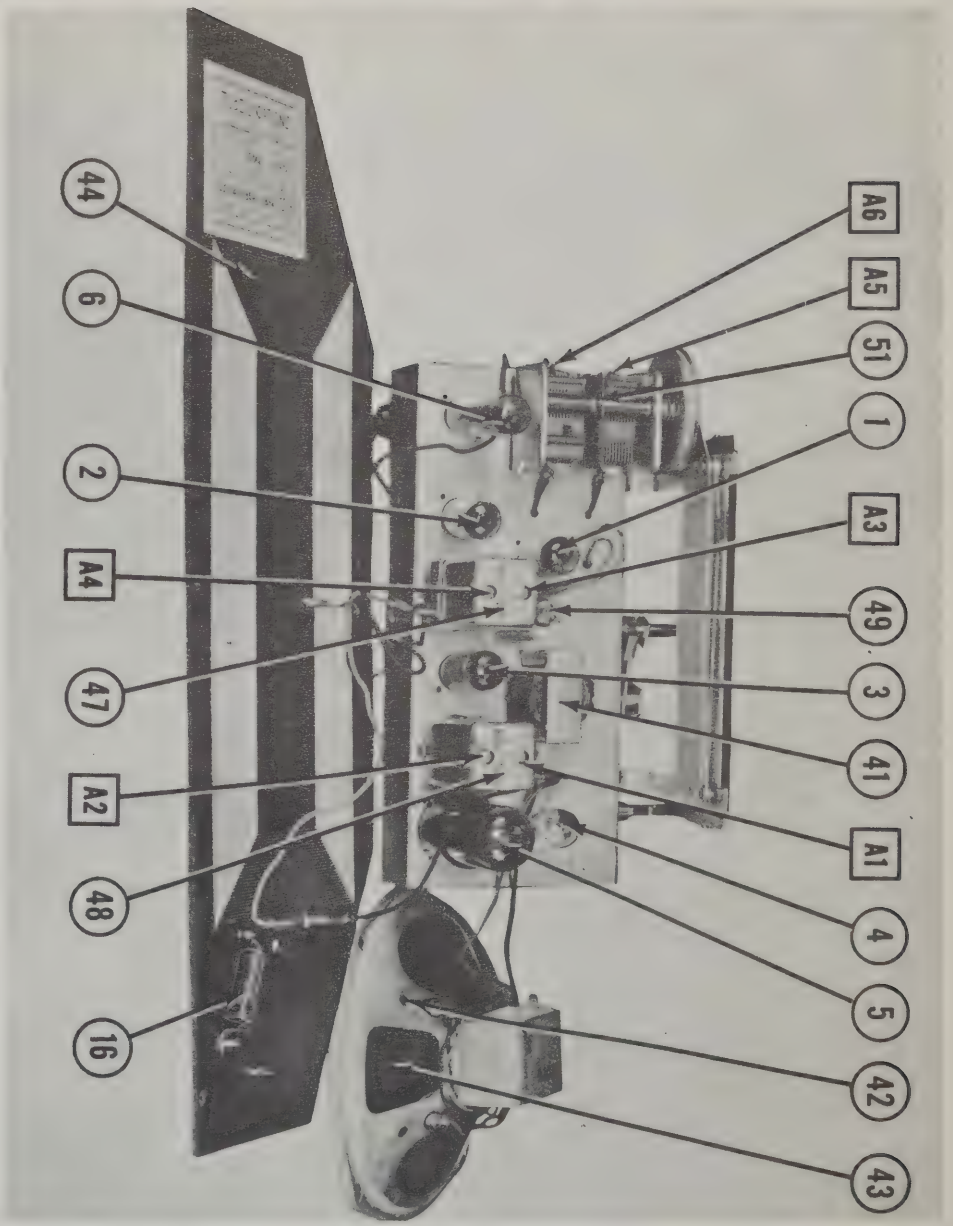
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AVIOLA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
24A	500KΩ	1	R-1043-2	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 24A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "
25A	500KΩ	1	R-1247	MR50	D11-133	M-58-S	Tone Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 25A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AVIOLA PART No.	IRC PART No.	IDENTIFICATION CODES
26	6800Ω	½		BTS-6800	Blue-Gray-Red RF Plate Load-See Note 1
27	47KΩ	½	11005-473	BTS-47K	Yl.-Vi.-Or. Converter Grid
28	470KΩ	½	11005-474	BTS-470K	Yl.-Vi.-Yl. Line Isolation-See Note 2
29	33KΩ	1		BTA-33K	Or.-Or.-Or. Oscillator Grid
30	150Ω	½	11005-151	BW-½-150	Br.-Grn.-Br. IF Cathode
31	2.2 Meg.	½	11005-225	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
32	47KΩ	½	11005-473	BTS-47K	Yl.-Vi.-Or. Diode RF Filter
33	220KΩ	½	11005-224	BTS-220K	Red-Red-Yl. Series Phono-See Note 3
34	6.8 Meg.	½	11005-685	BTS-6.8 Meg.	Blue-Gray-Grn. AF Grid
35	220KΩ	½	11005-224	BTS-220K	Red-Red-Yl. AF Plate Load-See Note 4
36	470KΩ	½	11005-474	BTS-470K	Yl.-Vi.-Yl. Tone Compensation
37	150Ω	½	11005-151	BW-½-150	Br.-Grn.-Br. Output Cathode
38	1200Ω	1	11008-122	BTA-1200	Br.-Red-Red Filter
39	330Ω	2		BW-2-330	Or.-Or.-Br. Filter
40	150Ω	½	11005-151	BW-½-150	Br.-Grn.-Br. Pilot Light Shunt

Note 1 - Some models use 4700Ω in this application.
Note 2 - Some models use 220KΩ in this application.
Note 3 - Some models use 100KΩ in this application.
Note 4 - Some models use 47KΩ in this application.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AVIOLA PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
41	2300Ω	3.2Ω	160Ω	.8Ω	R-1267	A-3876	T-28845		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			AVIOLA PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-108		
42A	PM	3.2Ω	R-1079	Mod. P6-X		Used in Model 608
B			R-1090			Alternate Speaker-Used in Model 608
C			R-1265			" " " " " 618
	CONE DIA.	VC DIA.				
43	6"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

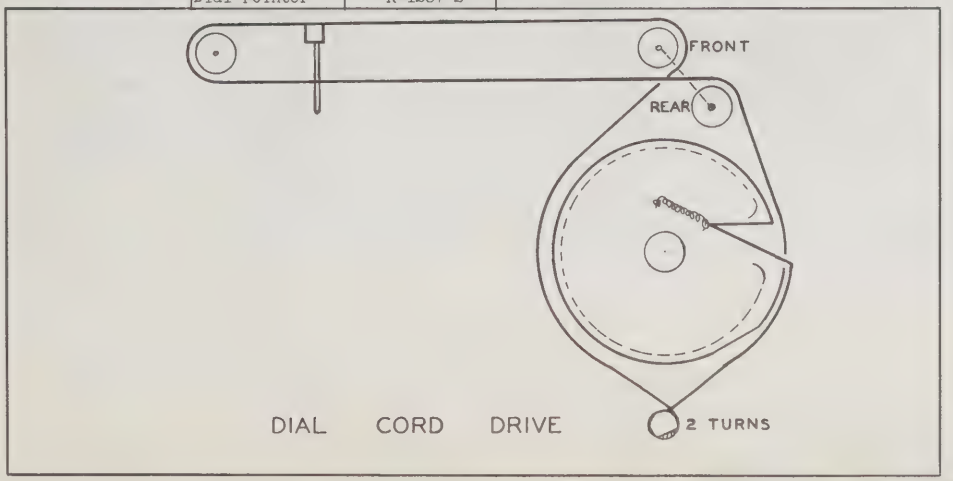
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	AVIOLA PART No.	MEISSNER PART No.	
44	Loop Ant.	.1Ω	2.5Ω	R-1084		
45	Osc. Coil	1.5Ω	10.5Ω	R-1033	14-1040	
46	Wave Trap			R-1042		
47	Input IF	46Ω	45Ω	R-1025-1	16-6666	
48	Output IF	24Ω	24Ω	R-1025-2	16-6667	

DIAL LIGHT

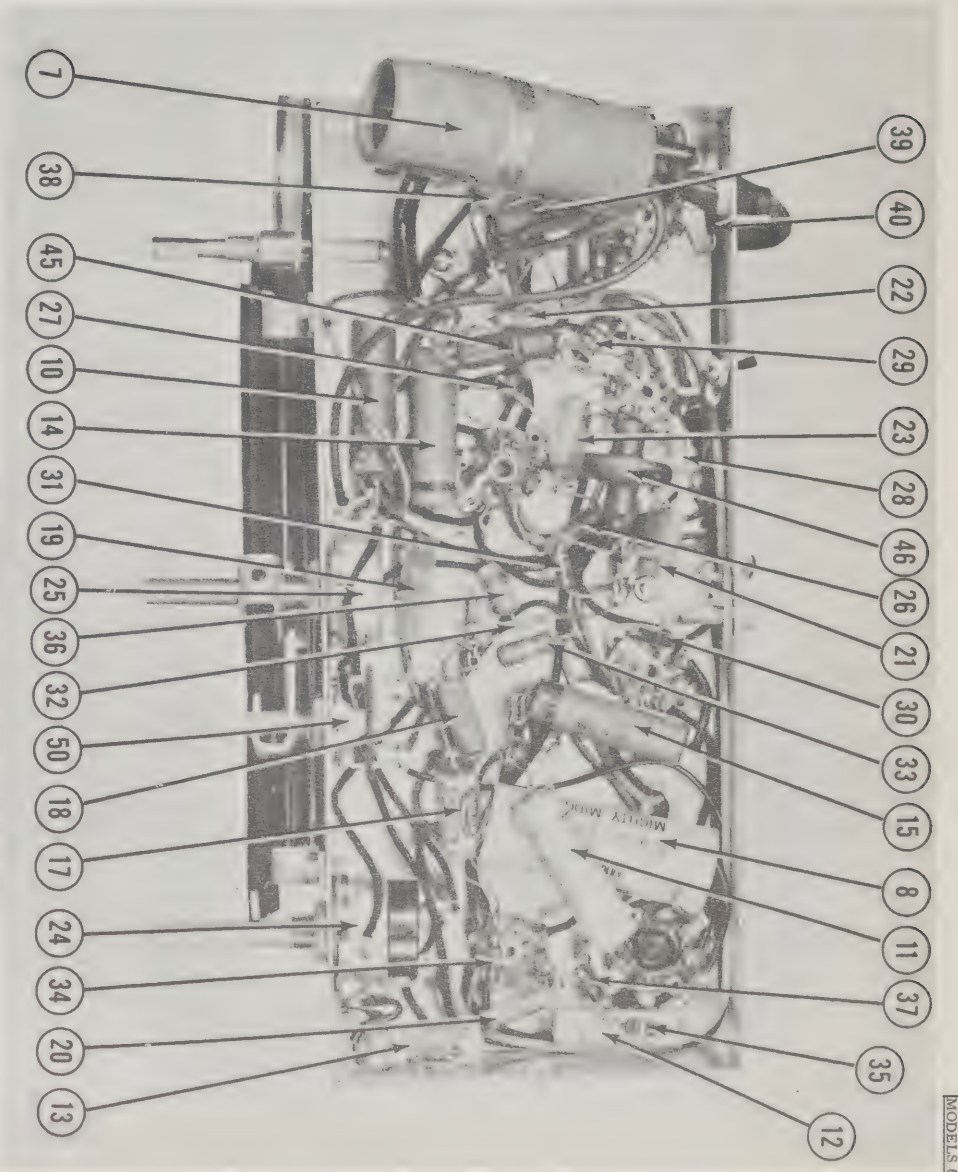
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					AVIOLA PART No.		
49	Bayonet	6-8V	0.15A	Brown			Type 47

MISCELLANEOUS

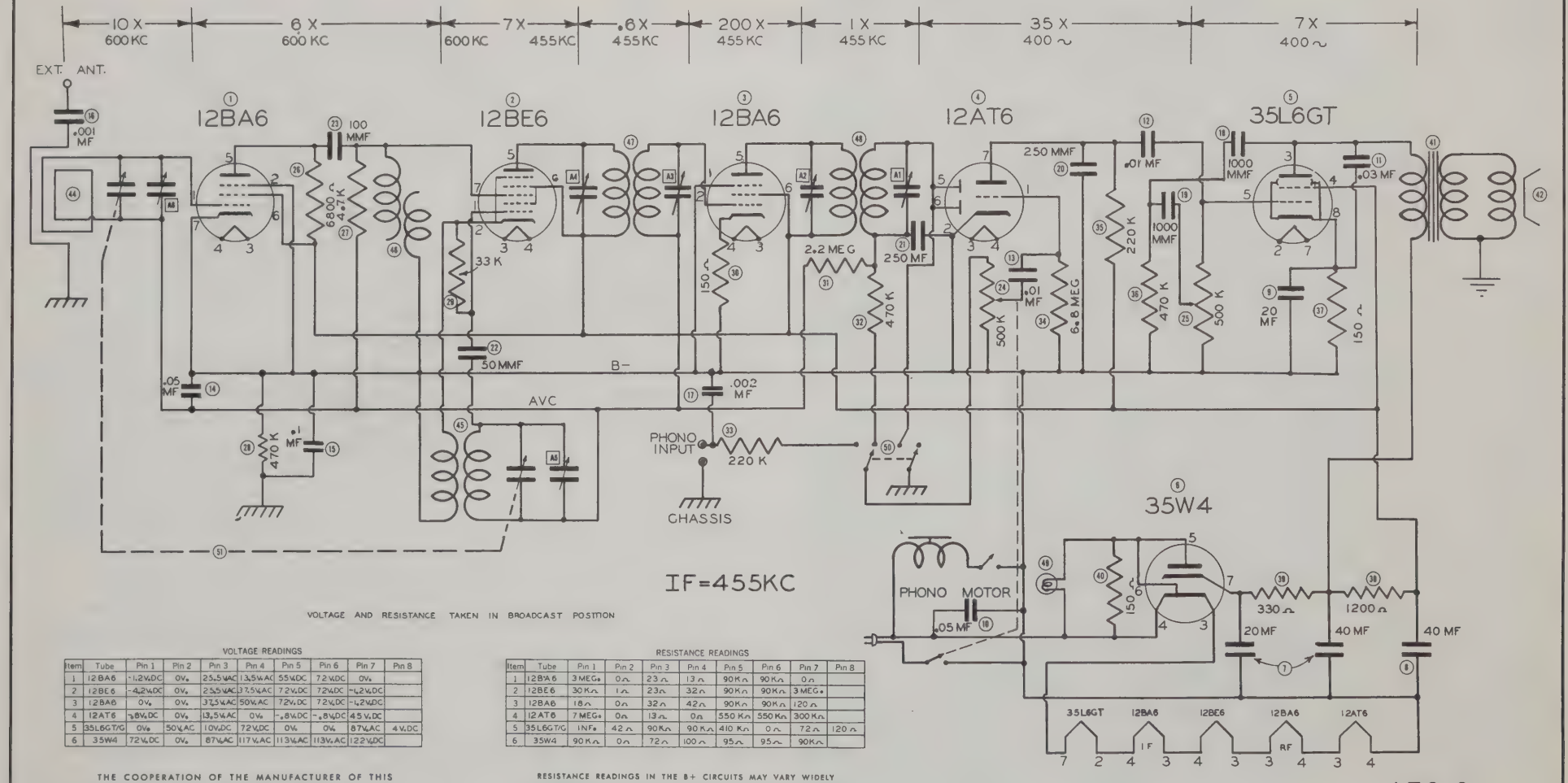
ITEM No.	PART NAME	AVIOLA PART No.	NOTES
50	Switch	R-1248	Radio-Phono
51	2 Gang Var. Cap.	R-1055	(32-424 MMF, 30-197 MMF)
	Dial Glass	R-1022	
	Dial Pointer	R-1257-2	



CHASSIS—BOTTOM VIEW



AVIOLA MODELS 608, 618



IF=455KC

VOLTAGE AND RESISTANCE TAKEN IN BROADCAST POSITION

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12BA6	-1.2V.DC	0V.	25.5V.AC	13.5V.AC	55V.DC	72V.DC	0V.	
2	12BE6	-4.2V.DC	0V.	25.5V.AC	37.5V.AC	72V.DC	72V.DC	-1.2V.DC	
3	12BA6	0V.	0V.	37.5V.AC	50V.AC	72V.DC	72V.DC	-1.2V.DC	
4	12AT6	-.8V.DC	0V.	13.5V.AC	0V.	-.8V.DC	-.8V.DC	45 V.DC	
5	35L6GT/G	0V.	50V.AC.	10V.DC	72V.DC	0V.	0V.	87V.AC	4 V.DC
6	35W4	72V.DC	0V.	87V.AC	117V.AC	113V.AC	113V.AC	122V.DC	

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12BA6	3 MEG.	0 Ω	23 Ω	13 Ω	90 KΩ	90 KΩ	0 Ω	
2	12BE6	30 KΩ	1 Ω	23 Ω	32 Ω	90 KΩ	90 KΩ	3 MEG.	
3	12BA6	18 Ω	0 Ω	32 Ω	42 Ω	90 KΩ	90 KΩ	120 Ω	
4	12AT6	7 MEG.	0 Ω	13 Ω	0 Ω	550 KΩ	550 KΩ	300 KΩ	
5	35L6GT/G	INF.	42 Ω	90 KΩ	90 KΩ	410 KΩ	0 Ω	72 Ω	120 Ω
6	35W4	90 KΩ	0 Ω	72 Ω	100 Ω	95 Ω	95 Ω	90 KΩ	

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

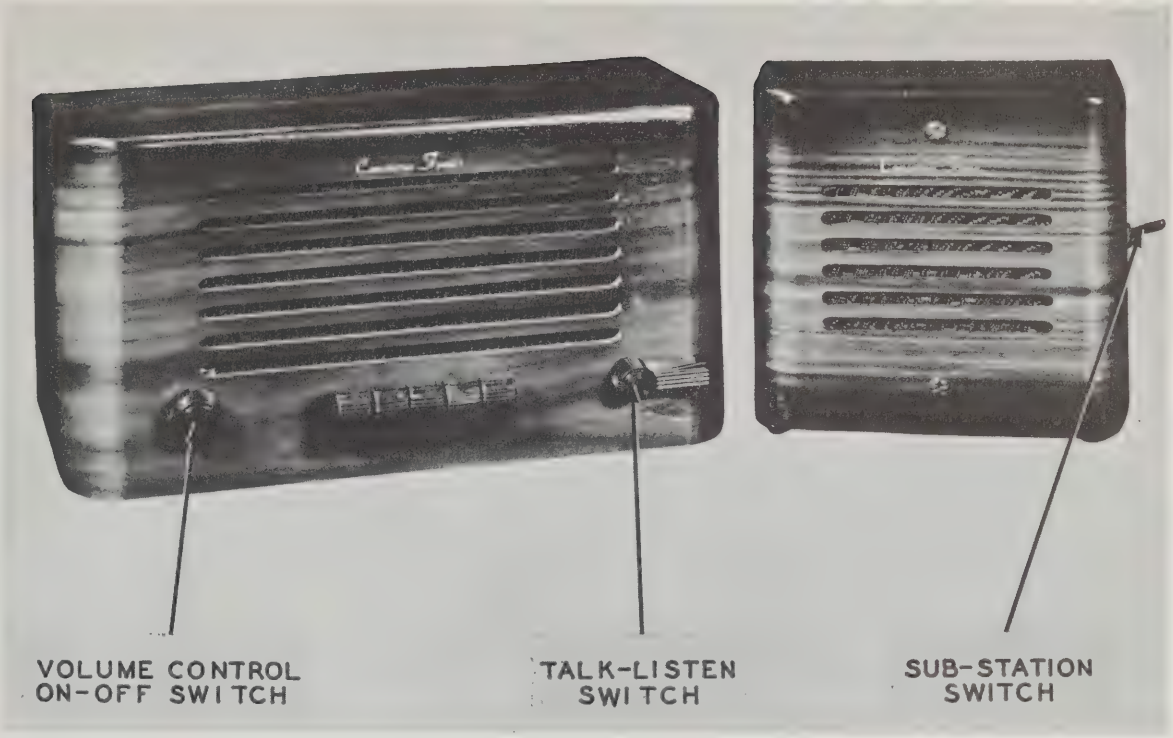
476-6

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**

CONVERSA-FONE
MODELS MS-5 (MASTER STATION), SS-5 (SUB-STATION)

CONVERSA-FONE
MODELS MS-5 (MASTER STATION),
SS-5 (SUB-STATION)



CONVERSA-FONE
MODELS MS-5 (MASTER STATION),
SS-5 (SUB-STATION)

TRADE NAME	Conversa-Fone, Models MS-5 (Master Station), SS-5 (Sub-Station) Inter-Com.
MANUFACTURER	Audio Communication Mfg. Co., Richmond Hill, N.Y.
TYPE SET	AC-DC Operated Inter-Communication System
TUBES (FOUR)	Types, 12SJ7 1st Audio, 12SJ7 2nd Audio, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC-DC RATING .235 Amp. @ 117 Volts AC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SJ7	0V.	12.5V.AC	0V.	-.4V.DC	0V.	27V.DC	0V.	27V.DC
2	12SJ7	0V.	12.5V.AC	0V.	-.45V.DC	0V.	27V.DC	25V.AC	27V.DC
3	50L6GT	0V.	82V.AC	135V.DC	127V.DC	0V.	0V.	25V.AC	10V.DC
4	35Z5GT	127 V.DC	108V.AC	108V.AC	0V.	117V.AC	0V.	82V.AC	142V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SJ7	0Ω	11Ω	0Ω	4 MEG.	0Ω	150KΩ	0Ω	150KΩ
2	12SJ7	0Ω	11Ω	0Ω	4 MEG.	0Ω	150KΩ	22Ω	150KΩ
3	50L6GT	INF.	67Ω	50KΩ	50KΩ	500KΩ	INF.	22Ω	210Ω
4	35Z5GT	50KΩ	99Ω	92Ω	0Ω	135Ω	INF.	67Ω	50KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS

CONVERSA-FONE MODELS
MS-5 (Master Station), SS-5 (Sub-Station)

TUBES

ITEM No.	USE	REPLACEMENT DATA: CONVERSA-F. PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	1st Audio	12SJ7	12SJ7	8N	
2	2nd Audio	12SJ7	12SJ7	8N	
3	Power Output	50L6GT	50L6GT	7AC	12A6 Alternate
4	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CONVERSA-FONE PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
5A	50	150		TA-530	PRSA150-40-40	BRD3515	2N520	DSB-5030-150	Filter - Red
B	30	150							" - Green
6	10	50		TA-510	PRS50-10	BR105	TC32	M-10-50	Cath. Bypass
7	.05	200		TC-15	484-05	DT4S5	TP426	S-4-05	Tone Compensation
8	.05	200		TC-15	484-05	DT4S5	TP426	S-4-05	Audio Coupling
9	1000	500		1FM-21	1468-001	1W5D1	MC255	MO.3-21	" "
10	1000	500		1FM-21	1468-001	1W5D1	MC255	MO.3-21	" "

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CONVERSA-FONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
11A	200KΩ	1		MR45	D14-129		Volume Control
B	Shaft			Not Req.	A		Attach to 11A per instructions
C	Switch			M26	41		" " " " "

RESISTORS

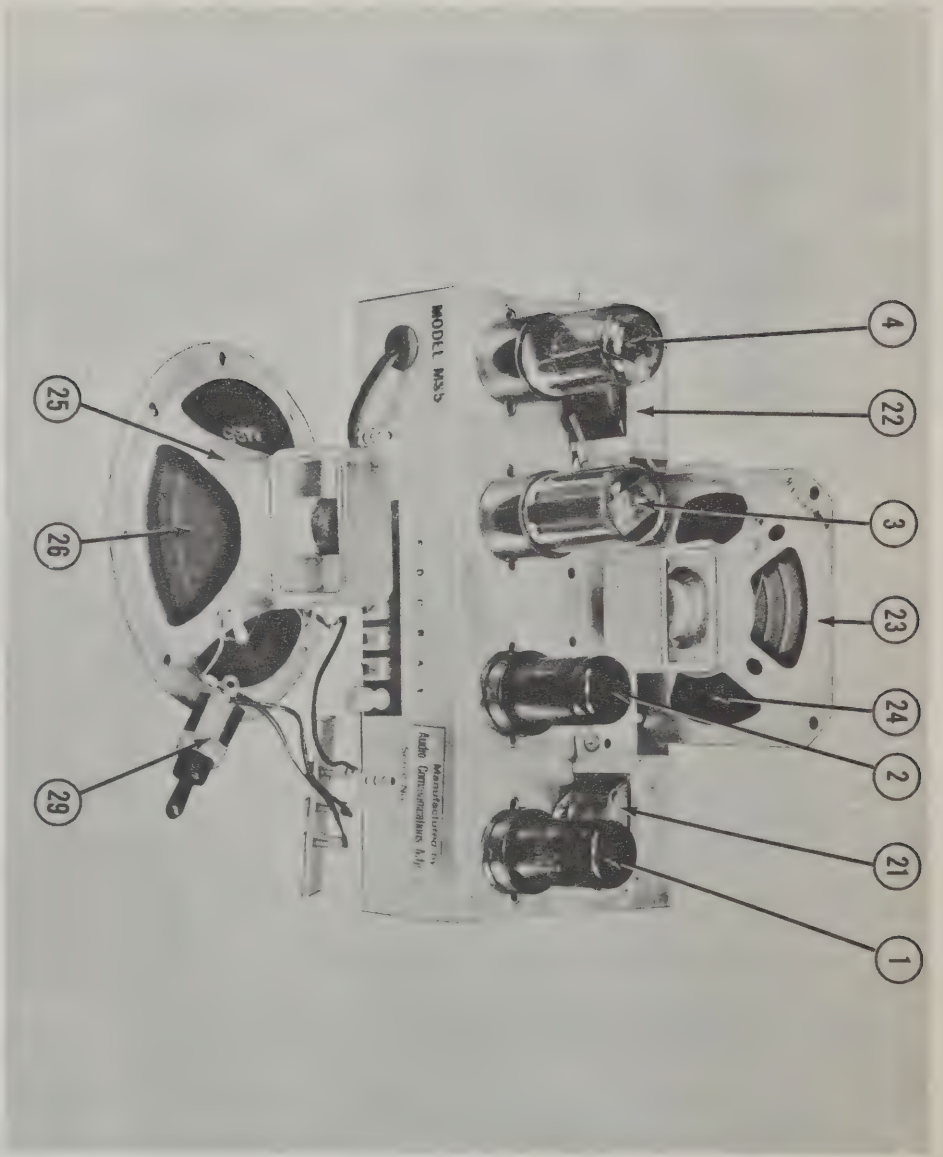
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CONVERSA-FONE PART No.	IRC PART No.	IDENTIFICATION CODES
12	1000Ω	½		BTS-1000	Br.-Blk.-Red 1st AF Cathode-See Note 1
13	100KΩ	½		BTS-100K	Br.-Blk.-Yl. 1st AF Plate Load
14	3.9 Meg.	½		BTS-3.9 Meg.	Or.-White-Grn. 1st AF Grid
15	3.9 Meg.	½		BTS-3.9 Meg.	Or.-White-Grn. 2nd AF Grid
16	100KΩ	½		BTS-100K	Br.-Blk.-Yl. 2nd AF Plate Load
17	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
18	240Ω	1		BW-1-220	Red-Yl.-Br. Output Cathode
19	3300Ω	½		BTS-3300	Or.-Or.-Red Filter
20A	50Ω	5		AB-50	Line Dropping-See Note 2
B	300Ω	10		AB-300	" " -See Note 3

Note 1-Not used in all models.
Note 2-Used with 50L6.
Note 3-Used with 12A6.

TRANSFORMER (MICROPHONE)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: TURNS RATIO	REPLACEMENT DATA: CONVERSA-FONE PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.	INSTALLATION NOTES
21	3.4Ω	1800Ω	.5Ω	180Ω	1 to 23		A-3876†		†Reverse normal connections.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		CONVERSA-FONE PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
22	1800Ω	3.4Ω	190Ω	.6Ω		A-3876	T22S45		

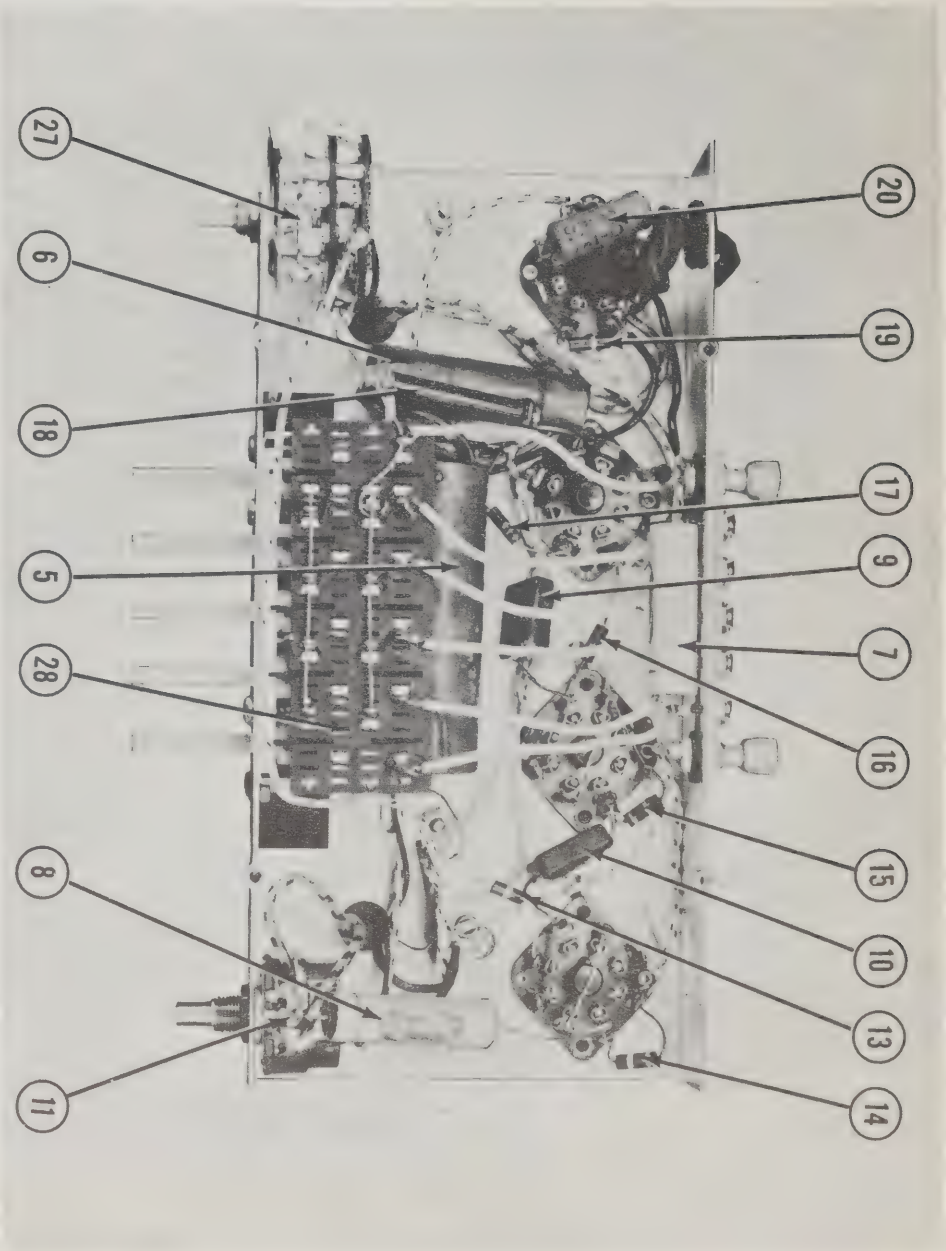
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			CONVERSA-FONE PART No.	JENSEN PART No.		
23	FIELD PM	VC IMP. 3.4Ω		ST-113 Mod. P4-X		Used in MS5
24	CONE DIA. 4"	VC DIA. 1/2"	NOT READILY	REPLACEABLE-USE COMPLETE SPEAKER UNIT.		
25	FIELD PM	VC IMP. 3.3Ω		ST-105 Mod. P5-X		Used in SS5
26	CONE DIA. 4-5/8"	VC DIA. 1/2"	NOT READILY	REPLACEABLE-USE COMPLETE SPEAKER UNIT.		

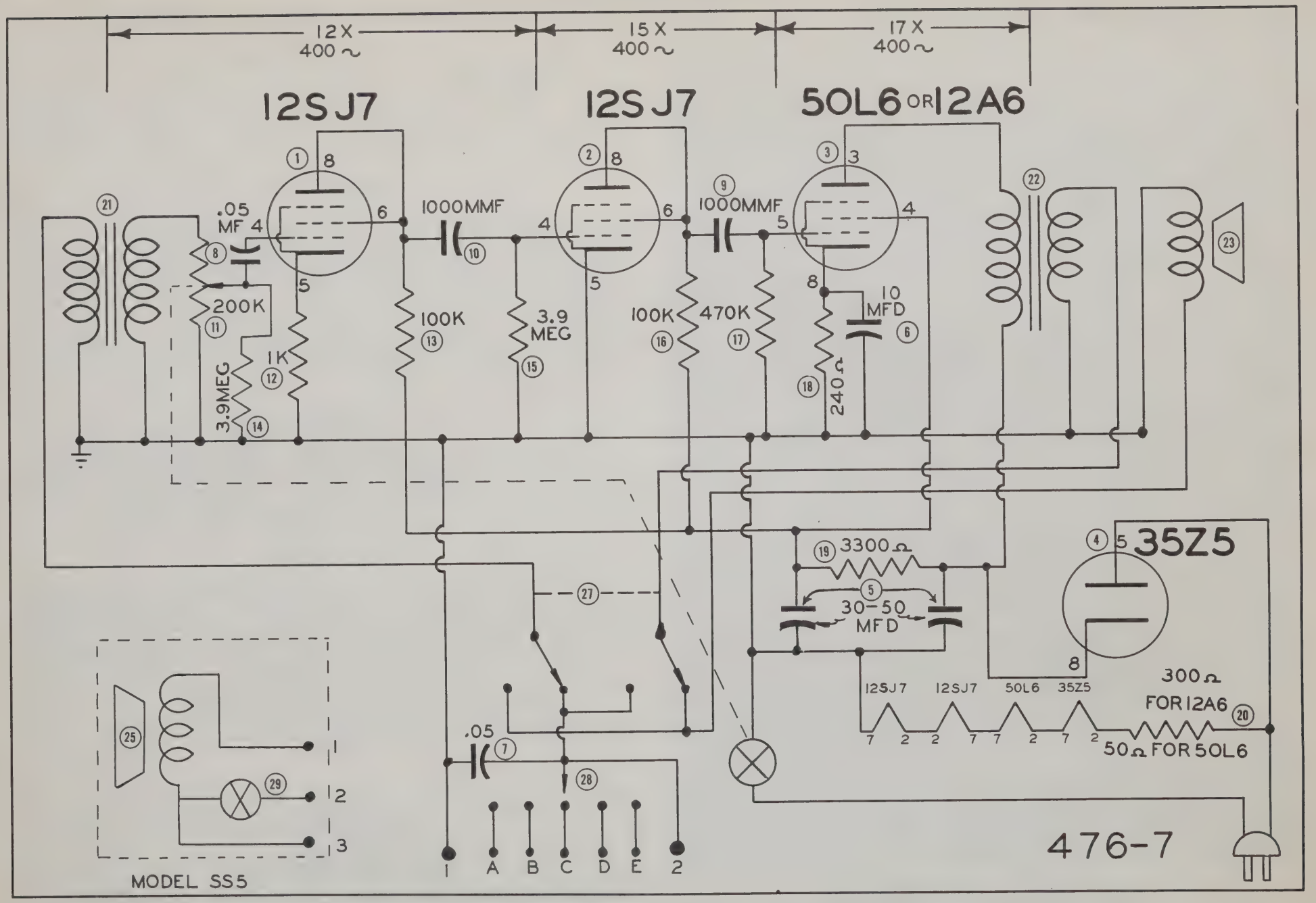
MISCELLANEOUS

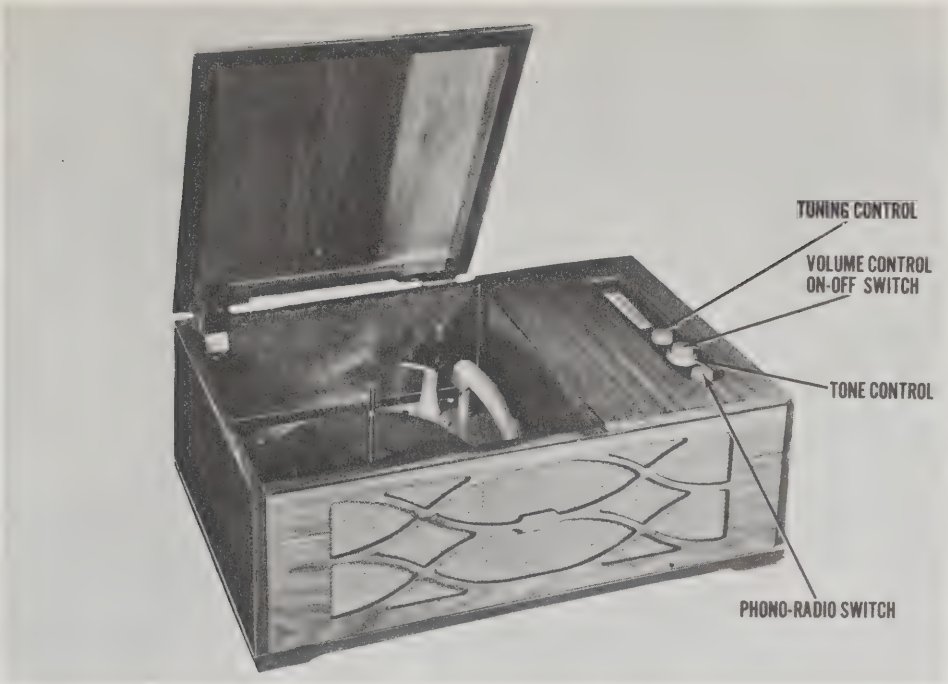
ITEM No.	PART NAME	CONVERSA-FONE PART No.	NOTES
27	Switch		Talk-Listen
28	Station Selector Assby.		
29	Switch		Sub-Station

CHASSIS—BOTTOM VIEW



CONVERSA-FONE MODELS
MS-5 (Master Station), SS-5 (Sub-Station)


12X
400~
15X
400~
17X
400~
12SJ7
12SJ7
50L6 OR 12A6
.05 MF
1000MMF
1000MMF
200K
100K
3.9 MEG
100K
470K
10 MFD
1K
3.9MEG
240Ω
3300Ω
30-50 MFD
35Z5
12SJ7
12SJ7
50L6
35Z5
300Ω FOR 12A6
50Ω FOR 50L6
.05
A
B
C
D
E
MODEL SS5
476-7



DETROLA
CHASSIS MODEL 7270

DETROLA
CHASSIS MODEL 7270

DETROLA CHASSIS MODEL 7270

TRADE NAME	Detrola Chassis Model 7270
MANUFACTURER	International Detrola Corp., 1501 Beard St., Detroit, Michigan
TYPE SET	AC Operated Combination Automatic Phono-Radio Superheterodyne - Loop Antenna
TUBES (SEVEN)	Types, 7A8 Converter, 7B7 IF Amp., 7C6 Det.-AVC-AF, 7C6 Phase Inverter, (2) 35L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC
TUNING RANGE—BROADCAST	540-1600KC RATING .280 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap. fully closed and set pointer to last reference mark at low frequency end of dial. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume should be at maximum. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to Pin 6 (grid) of 7A8. Low side to B-.	455KC	Tuning cap fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation. Repeat until no further increase in output is obtained.
"	"	1620KC	"	"	A5	Adjust for maximum output.
	Loop	1400KC	Tune for maximum output.	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

DISASSEMBLY INSTRUCTIONS

1. Remove push-on type control knobs from top panel.
2. Remove loop ant. plug from rear of chassis.
3. Remove six screws holding loop ant. Remove loop ant.
4. Remove four Phillips head screws from bottom cover board. Remove board.
5. Remove phono-pickup plug from chassis.
6. Remove speaker plug from chassis.
7. Remove two bolts holding chassis mounting board. Remove chassis and mounting board.
8. Disconnect phono motor leads.
9. Remove two screws holding mounting board to chassis. Remove mounting board.
10. Remove seven Phillips lead screws holding changer bottom cover board.
11. Remove two Phillips head screws holding speaker mounting board. Remove speaker and mounting board.

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PARTS LIST AND DESCRIPTIONS

DETROLA MODEL 7270

TUBES

ITEM No.	USE	REPLACEMENT DATA: DETROLA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	7A8	7A8	8U	
2	IF Amp.	7B7	7B7	8V	
3	Det.-AVC-AF	7C6	7C6	8W	
4	Phase Inverter	7C6	7C6	8W	
5	Power Output	35L6GT	35L6GT	7AC	
6	Power Output	35L6GT	35L6GT	7AC	
7	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: DETROLA PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
8A	40	150	A-56154	EL-224	AF844D	UP6CJ44	FP363	DY-402010-150	Filter
B	20	150							"
C	10	150							"
9	.05	400	BD410503	TC-15	484-05	DT4S5	TP426	S-4-05	Line Filter
10	.005	600	BD610502	TC-25	684-005	DT6D5	TP408	S-6-005	Output Plate Bypass
11	.02	400	BD410203	TC-12	484-02	DT4S2	TP423	S-4-02	Audio Coupling
12	.02	400	BD410203	TC-12	484-02	DT4S2	TP423	S-4-02	" "
13	.1	400	BD410104	TC-1	484-.1	DT4P1	TP428	S-4-1	Ph. Inv. Plate Decoup.
14	.02	400	BD410203	TC-12	484-02	DT4S2	TP423	S-4-02	Audio Coupling
15	.005	600	BD610502	TC-25	684-005	DT6D5	TP408	S-6-005	Tone Compensation
16	.1	400	BD410104	TC-1	484-.1	DT4P1	TP428	S-4-1	Audio Plate Decoup.
17	.01	400	BD410103	TC-11	484-01	DT4S1	TP421	S-4-01	Audio Coupling
18	.1	400	BD410104	TC-1	484-.1	DT4P1	TP428	S-4-1	Phono Shield Isol.
19	.05	200	BD210503	TC-15	484-05	DT4S5	TP426	S-4-05	AVC Filter
20	.05	400	BD410503	TC-15	484-05	DT4S5	TP426	S-4-05	Line Isolation
21	100	500	BM74A101	1FM-31	1468-0001	5W5T1	MC235	MO.5-31	Audio Plate Bypass
22	220	500	BM74A221	1FM-32	1468-0002	5W5T2	MC237	MO.5-322	Osc. Grid Capacitor

CONTROLS

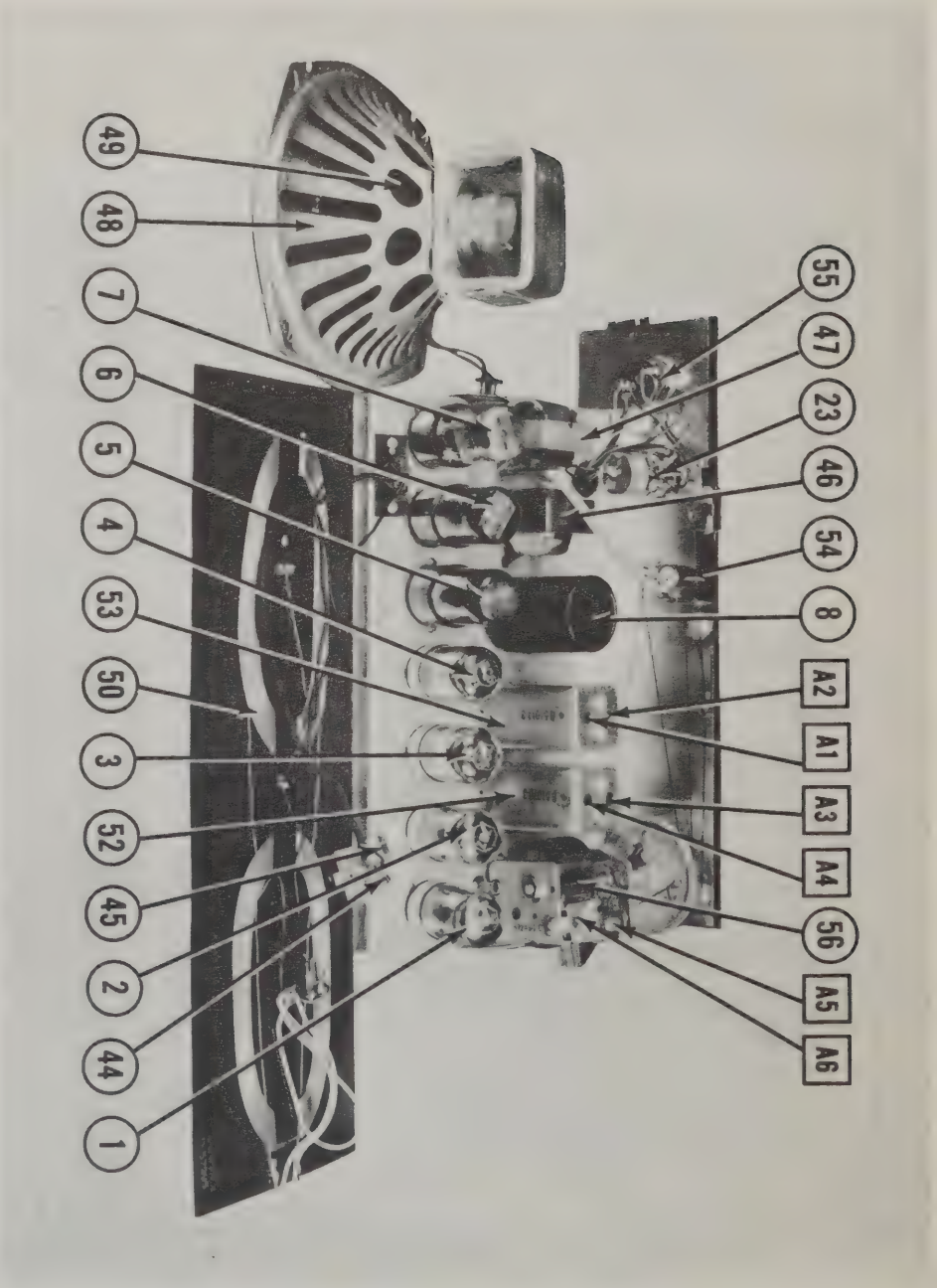
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: DETROLA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
23A	500KΩ	1	B-56142-1				Volume Control & Switch-See Note
B	500KΩ	1					Tone Control-See Note

Note-This is a dual unit operated by concentric shafts.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: DETROLA PART No.	IRC PART No.	IDENTIFICATION CODES
24	22KΩ	½	BR17B224	BTS-220K	Red-Red-Yl. Line Isolation
25	47KΩ	½	BR17B473	BTS-47K	Yl.-Vi.-Or. Oscillator Grid
26	10KΩ	½	BR17B103	BTS-10K	Br.-Blk.-Or. Converter Screen Dropping
27	15 Meg.	½	BR17B156	BTS-15 Meg.	Br.-Grn.-Blue AVC Network
28	3.3 Meg.	½	BR17B335	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
29	6.8 Meg.	½	BR17B685	BTS-6.8 Meg.	Blue-Gray-Grn. AF Grid
30	150KΩ	½	BR17B154	BTS-150K	Br.-Grn.-Yl. AF Plate Load
31	150KΩ	½	BR17B154	BTS-150K	Br.-Grn.-Yl. AF Plate Decoupling
32	4700Ω	½	BR17B472	BTS-4700	Yl.-Vi.-Red Phase Inverter Cathode
33	470KΩ	½	BR17B474	BTS-470K	Yl.-Vi.-Yl. Phase Inverter Grid
34	100KΩ	½	BR17B104	BTS-100K	Br.-Blk.-Yl. Phase Inverter Plate Load
35	100KΩ	½	BR17B104	BTS-100K	Br.-Blk.-Yl. Phase Inverter Plate Decoupling
36	100KΩ	½	BR17B104	BTS-100K	Br.-Blk.-Yl. Phase Inverter Cathode
37	470KΩ	½	BR17B474	BTS-470K	Yl.-Vi.-Yl. Output Grid
38	470KΩ	½	BR17B474	BTS-470K	Yl.-Vi.-Yl. Output Grid
39	100Ω	½	BR16C101	BW-½-100	Br.-Blk.-Br. Output Cathode
40	1000Ω	½	BR17B102	BTS-1000	Br.-Blk.-Red Filament Shunt
41	10KΩ	1	BR17E103	BTA-10K	Br.-Blk.-Or. " "
42	47Ω	2	BR17G470	BW-2-47	Yl.-Vi.-Blk. Rectifier Ballast
43	220Ω	½	BR17C221	BW-½-220	Red-Red-Br. Pilot Light Shunt
44	330KΩ	½		BTS-330K	Or.-Or.-Yl. Series Phono
45	220KΩ	½		BTS-220K	Red-Red-Yl. Phono Shunt

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM NO.	RATINGS			REPLACEMENT DATA			INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000~)	DETROLA PART NO.	STANCOR PART NO.	THORDARSON PART NO.	
46A	.073A	100Ω	2 Henries	B-51726-2	C-1355		
B				B-51726-1			Alternate filter choke

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		DETROLA PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
47	5400ΩCT	3.8Ω	230Ω	.8Ω CT	B-57253-1	A-3856*	T22847*		*Drill new mounting holes.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			DETROLA PART No.	JENSEN PART No.		
	FIELD	VC IMP.				
48	PM	3.8Ω	C-57272			
	CONE DIA.	VC DIA.				
49	6½"x9"	15/16"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

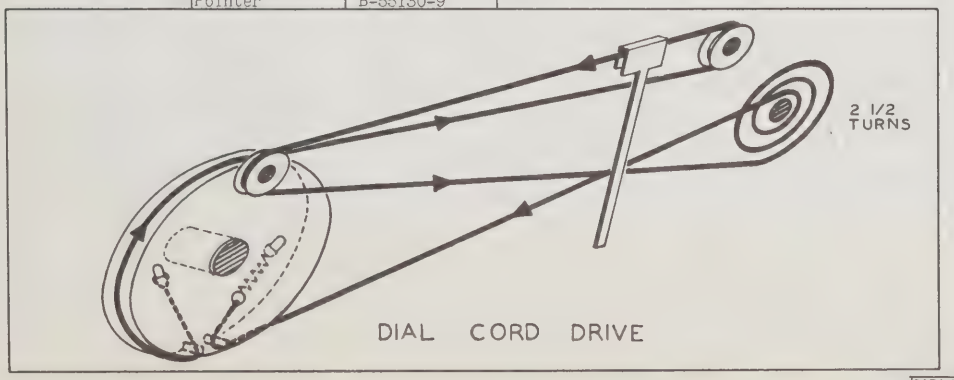
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	DETROLA PART No.	MEISSNER PART No.	
50	Loop Ant.	.1Ω	1.7Ω	D-57259		
51	Osc. Coil	2.2Ω	6Ω	B-56143		
52	Input IF	31Ω	22Ω	B-51010-3	16-6658	
53	Output IF	29Ω		B-51011-3	16-6670	

DIAL LIGHT

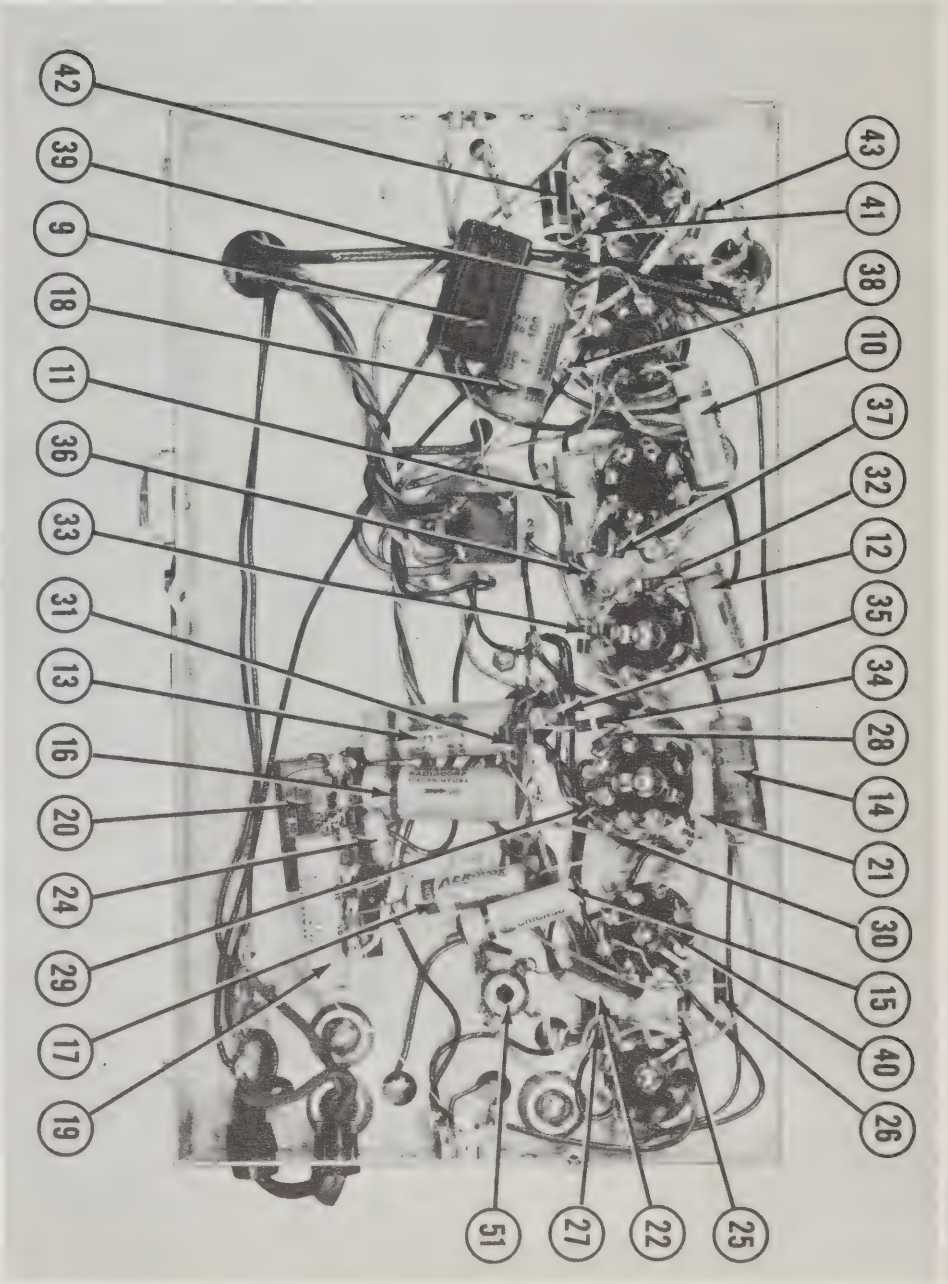
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					DETROLA PART No.		
54	Bayonet	6-8	0.15	Brown	A-6158		Type 47

MISCELLANEOUS

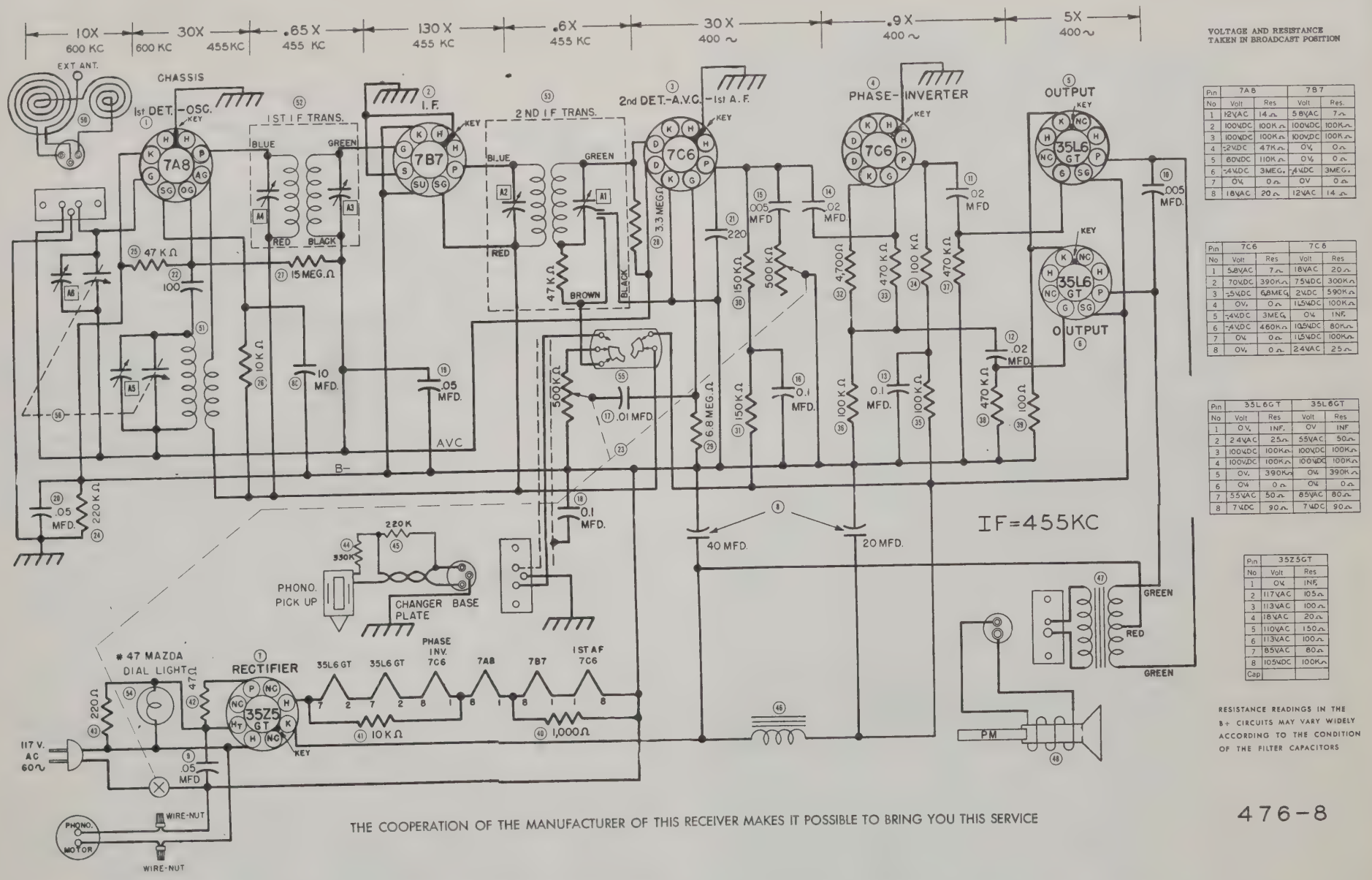
ITEM No.	PART NAME	DETROLA PART No.	NOTES
56	Switch	B-56156-1	Radio-Phono
57	2 Gang Var. Cap.	C-57243-1	(31-465 MMF, 27-193 MMF)
	Dial Scale	B-57269-1	Plastic
	Pointer	B-55130-9	



CHASSIS—BOTTOM VIEW



DETROLA MODEL 1270



VOLTAGE AND RESISTANCE TAKEN IN BROADCAST POSITION

Pin No	7A8 Volt	7A8 Res	7B7 Volt	7B7 Res.
1	12VAC	14Ω	58VAC	7Ω
2	100VDC	100KΩ	100VDC	100KΩ
3	100VDC	100KΩ	100VDC	100KΩ
4	-2VDC	47KΩ	0V.	0Ω
5	60VDC	110KΩ	0V.	0Ω
6	-4VDC	3MEG.	-4VDC	3MEG.
7	0V.	0Ω	0V	0Ω
8	18VAC	20Ω	12VAC	14Ω

Pin No	7C6 Volt	7C6 Res	7C8 Volt	7C8 Res
1	58VAC	7Ω	18VAC	20Ω
2	70VDC	390KΩ	75VDC	300KΩ
3	-5VDC	6.8MEG.	2VDC	590KΩ
4	0V.	0Ω	115VDC	100KΩ
5	-4VDC	3MEG.	0V.	INF.
6	-4VDC	460KΩ	105VDC	80KΩ
7	0V.	0Ω	115VDC	100KΩ
8	0V.	0Ω	24VAC	25Ω

Pin No	35L6GT Volt	35L6GT Res	35L6GT Volt	35L6GT Res
1	0V.	INF.	0V	INF
2	24VAC	25Ω	55VAC	50Ω
3	100VDC	100KΩ	100VDC	100KΩ
4	100VDC	100KΩ	100VDC	100KΩ
5	0V.	390KΩ	0V.	390KΩ
6	0V.	0Ω	0V.	0Ω
7	55VAC	50Ω	85VAC	80Ω
8	7VDC	90Ω	7VDC	90Ω

Pin No	35Z5GT Volt	35Z5GT Res
1	0V.	INF.
2	117VAC	105Ω
3	113VAC	100Ω
4	18VAC	20Ω
5	110VAC	150Ω
6	113VAC	100Ω
7	85VAC	80Ω
8	105VDC	100KΩ
Cap		

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

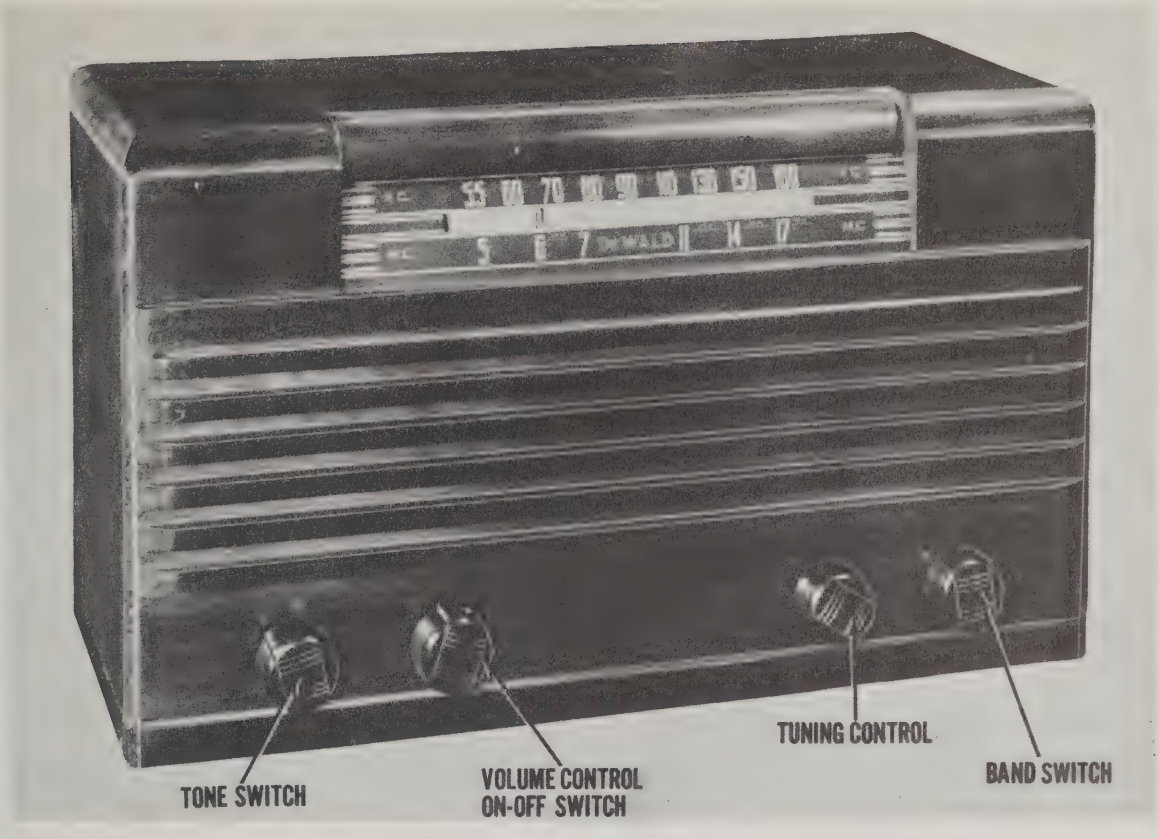
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

476-8

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

DEWALD
MODELS A 504, A 505



DEWALD
MODELS A 504, A 505

DEWALD MODEL A505

TRADE NAME	Dewald, Models A504, A505
MANUFACTURER	Dewald Radio Mfg. Corp., 440 LaFayette St., New York, N.Y.
TYPE SET	AC-DC Operated Superheterodyne-Self Contained Loop Antenna
TUBES (FIVE)	Types, 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 50L6GT Power Output 35Z5GT Rectifier.
POWER SUPPLY	105-125 Volts AC-DC — RATING .230 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535-1650 KC — **SHORT WAVE** 4.75-17.2MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer 1" from left edge of dial backplate. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and chassis. Volume control should be at maximum. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
200MMF.	High side to ext. ant. lead. Low side to chassis.	455KC	BC (counter-clock-wise)	Tuning capacitor fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output
400Ω	"	17.2MC	SW (clock-wise)	"	"	A5	" " " "
400Ω	"	16.0MC	"	Tune for maximum.	"	A6	Rock variable and adjust for maximum output.
200MMF.	"	1650KC	BC	Tuning capacitor fully open.	"	A7	Adjust for maximum output
200MMF.	"	600KC	"	Tune for maximum output.	"	A8	Rock variable and adjust for maximum output. Recheck A7 at 1650KC.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: DEWALD PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SA7GT	12SA7GT	8AD	
2	IF Amp.	12SK7GT	12SK7GT	8N	
3	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: DEWALD PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	30	150	2005-1	EL-230	AF66D	UP3315	FP211	DY-2x30-150	■ Filter
B	30	150							▲ "
7	.05	400		TC-15	484-05	DT4S5	TP426	S-4-05	Line Filter
8	.02	400		TC-12	484-02	DT4S2	TP423	S-4-02	Output Plate Bypass
9	.002	600		TC-22	684-002	DT6D2	TP405	S-6-002	Tone Compensation
10	.01	400		TC-11	484-01	DT4S1	TP421	S-4-01	Audio Coupling
11	.01	400		TC-11	484-01	DT4S1	TP421	S-4-01	" "
12	.05	400		TC-15	484-05	DT4S5	TP426	S-4-05	AVC Filter
13	.05	400		TC-15	484-05	DT4S5	TP426	S-4-05	RF Bypass Pwr. Supp.
14	.01	400		TC-11	484-01	DT4S1	TP421	S-4-01	Ant. Coupling
15	220	500		1FM-32	1468-0002	5W5T2	MC237	MO.5-322	Audio Plate Bypass
16	220	500		1FM-32	1468-0002	5W5T2	MC237	MO.5-322	IF Bypass Vol. Cont.
17	4000	300		1FM-24	1467-004	1W5D4	MC463	MW.5-24	Fixed Padder
18	100	500		1FM-31	1468-0001	5W5T1	MC235	MO.5-31	Osc. Grid Capacitor

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: DEWALD PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
19A	500KΩ	1	3002-2	MR48	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	F	RS-2	Attach to 19A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

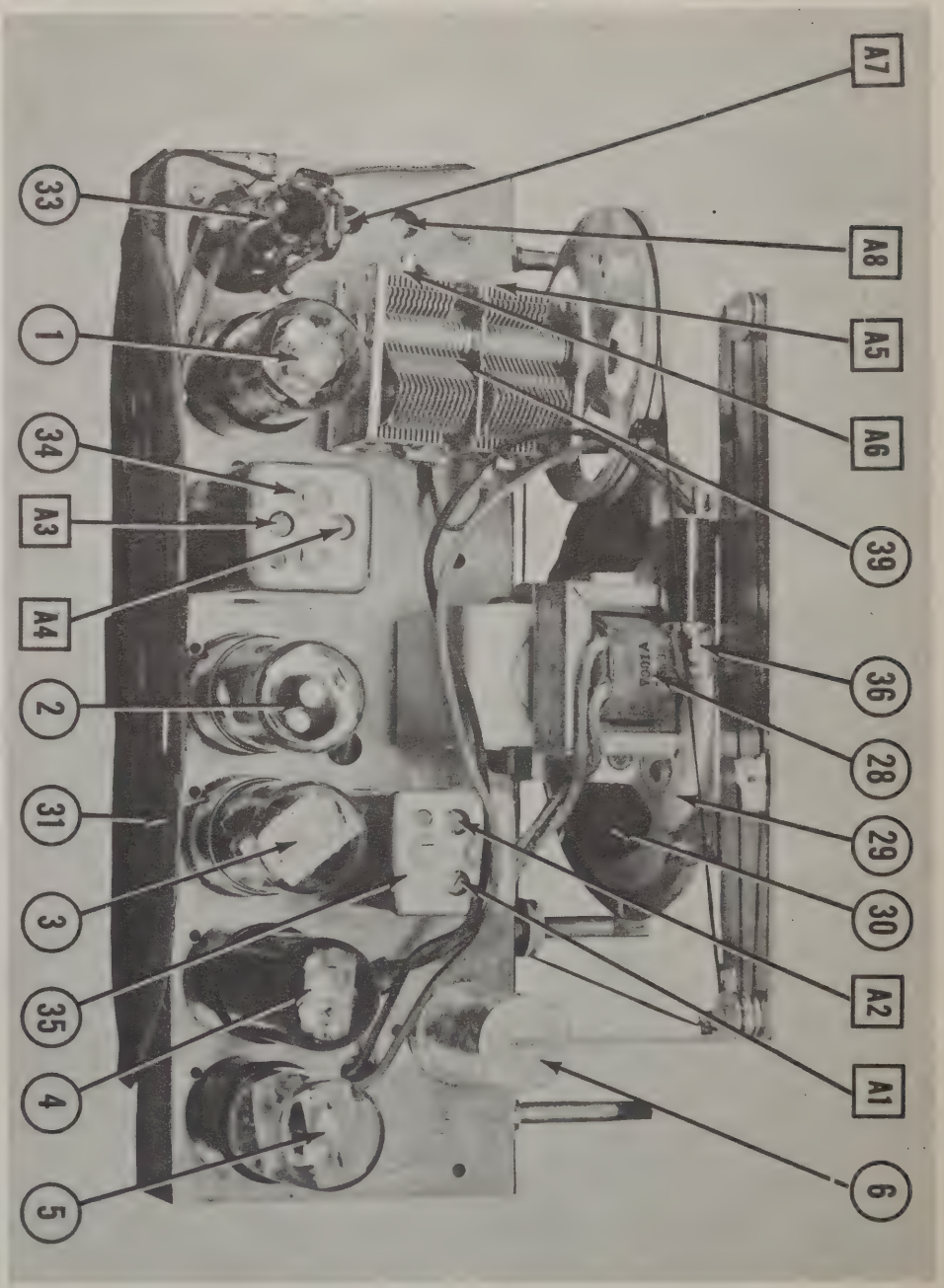
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: DEWALD PART No.	IRC PART No.	IDENTIFICATION CODES
20	22KΩ	½		BTS-22K	Red-Red-Or. Oscillator Grid
21	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
22	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
23	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. AF Plate Load
24	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
25	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
26	2700Ω	2		BT-2-2700	Red-Vi.-Red Filter
27	18Ω	½		BW-½-18	Br.-Gray-Blk. Rectifier Ballast

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: DEWALD PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
28	2500Ω	3.7Ω	230Ω	.82	Part of 7001A	A3876	T22S45		

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA DEWALD PART No.	JENSEN PART No.		INSTALLATION NOTES
29	FIELD PM	VC IMP. 3.7Ω	7001A	ST-107* Mod. P5-V		*Fabricate new mounting bracket.
30	CONE DIA. 4-5/8"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

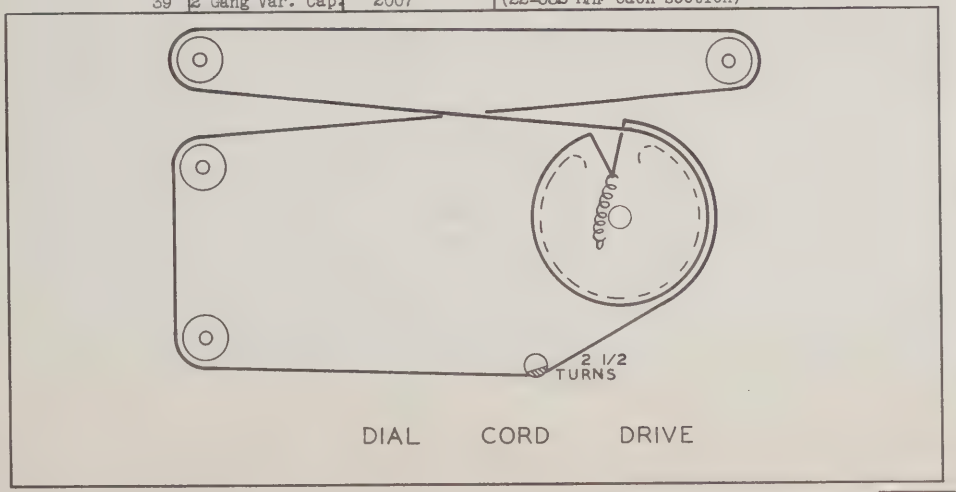
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA DEWALD PART No.	REPLACEMENT DATA MEISSNER PART No.	
31	Loop Ant.	.5Ω	1.5Ω	1007		
32	SW Ant.Coil	0Ω	0Ω	1009	14-1044	
33A	BC Osc.Coil		5Ω	1008		33A & 33B wound on same form.
B	SW " "		0Ω			
34	Input IF	18.5Ω	18.5Ω	1000	16-6658	
35	Output IF	29Ω	29Ω	1002	16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA DEWALD PART No.		INSTALLATION NOTES
36	Bayonet	6-8	0.15	Brown			Type 47

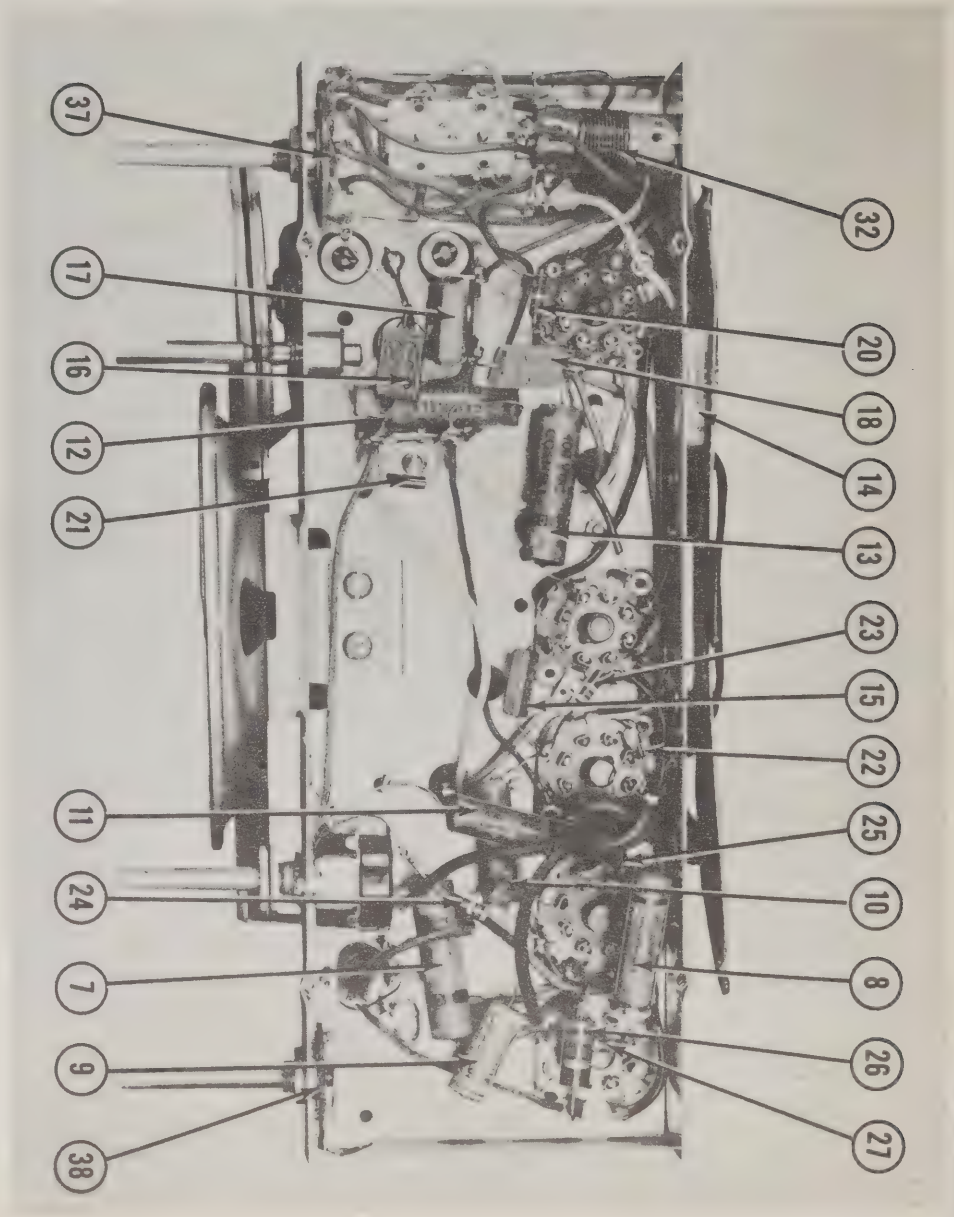
MISCELLANEOUS

ITEM No.	PART NAME	DEWALD PART No.	NOTES
37	Band Switch		
38	Tone Switch		
39	2 Gang Var. Cap.	2007	(22-532 MMF each section)

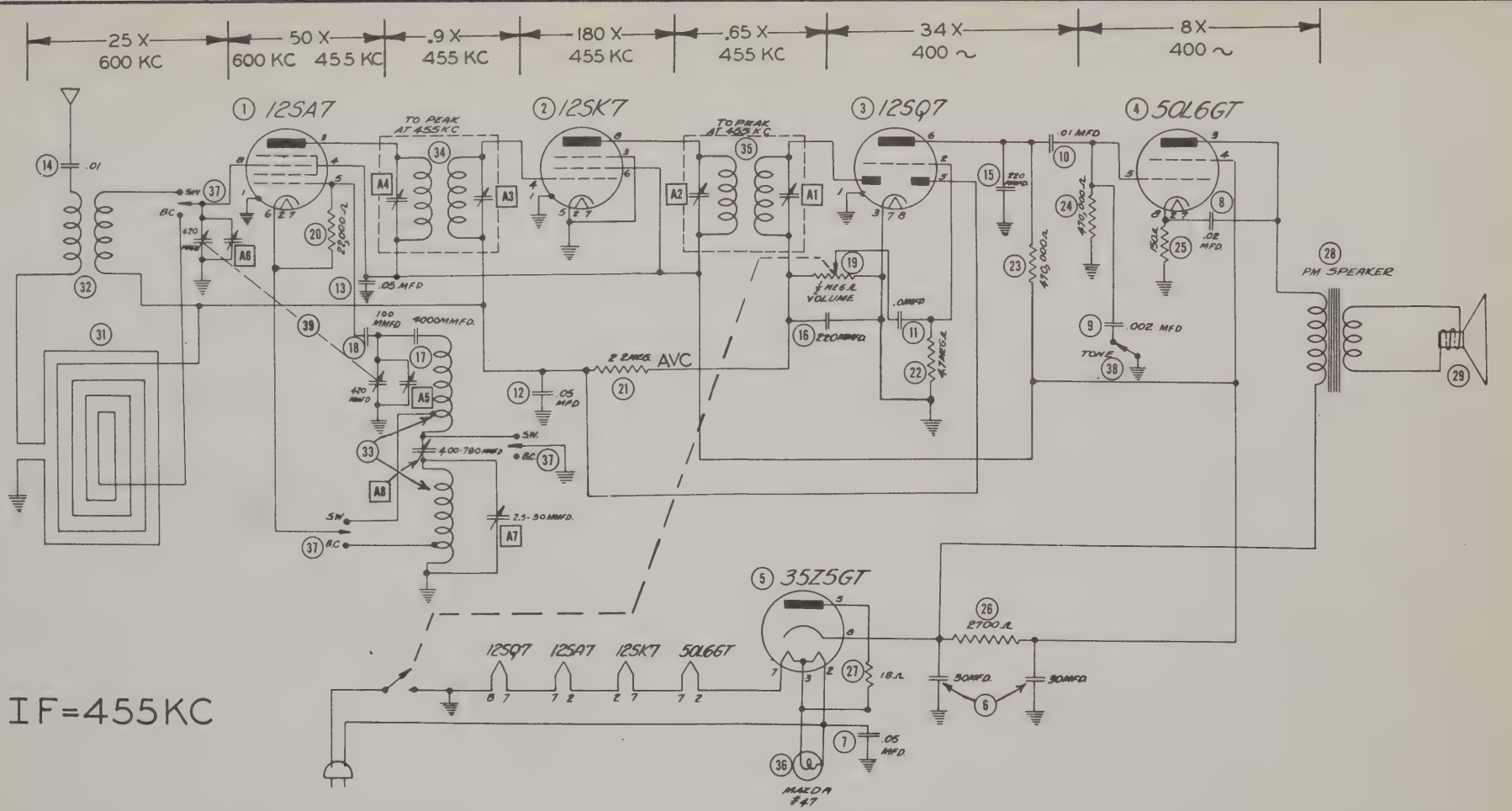


DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



DEWALD MODELS A504, A505



NOTE VOLTAGE & RESISTANCE TAKEN IN BROADCAST POSITION

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7GT	0V.	24V.AC	70V.DC	70V.DC	-3.8V.DC	0V.	13V.AC	-.6 V.DC
2	12SK7GT	0V.	24V.AC	0V.	-.6 V.DC	0V.	70V.DC	37 V.AC	70V.DC
3	12SQ7GT	0V.	-1V.DC	0V.	-.45V.DC	-.6 V.DC	50 V.DC	13 V.AC	0V.
4	50L6GT	0V.	90V.AC	125V.DC	70V.DC	0V.	0V.	37 V.AC	5.3V.DC
5	35Z5GT	0V.	117V.AC	113V.AC	0V.	113V.AC	0V.	90V.AC	125V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7GT	0Ω	23Ω	52 KΩ	52 KΩ	20 KΩ	.5 Ω	12 Ω	3 MEG.
2	12SK7GT	0Ω	23Ω	0Ω	3 MEG.	0Ω	52 KΩ	32 Ω	52 KΩ
3	12SQ7GT	0Ω	4.5MEG.	0Ω	420 KΩ	3 MEG.	500 KΩ	12 Ω	0Ω
4	50L6GT	INF.	80 Ω	52 KΩ	52 KΩ	390 KΩ	INF.	32 Ω	150 Ω
5	35Z5GT	INF.	105 Ω	100Ω	INF.	120 Ω	INF.	80 Ω	52 KΩ

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

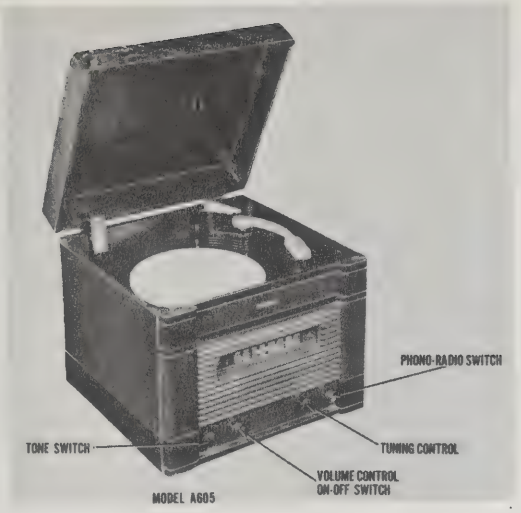
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

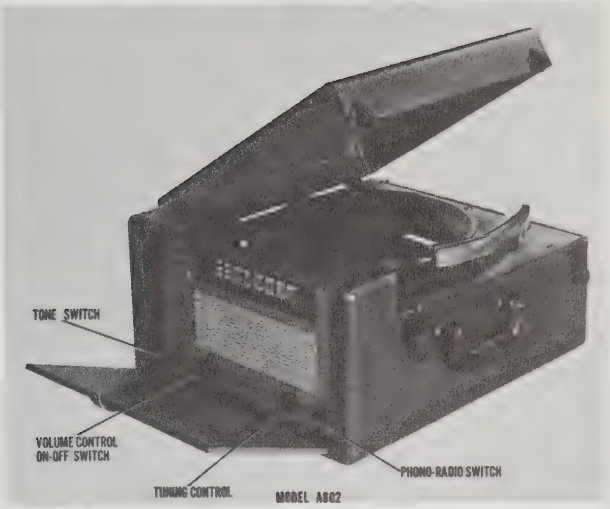
476-9

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

DEWALD
MODELS A-602, A-605





TRADE NAME	Dewald, Models A-602 (Manual Record Player), A-605 (Automatic Record Player)
MANUFACTURER	Dewald Radio Mfg. Corp., 440 LaFayette St., New York, N.Y.
TYPE SET	AC Operated Combination Phono-Radio Superheterodyne with Loop Antenna
TUBES (SIX)	Types, 12SK7GT RF Amp., 12SA7GT Converter, 12SK7 IF Amp., 12SQ7GT Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	105-125 Volts AC
TUNING RANGE—BROADCAST	535-1700KC RATING .245 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap fully closed and set pointer to reference mark cut on back of dial backplate at low frequency end of dial. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and chassis. Volume control at maximum position. Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	455KC	Tuning cap fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
200MMFD.	"	"	Tuning cap fully closed.	"	A5	Adjust for minimum output.
200MMFD.	"	1700KC	Tuning cap. fully open.	"	A6	Adjust for maximum output.
200MMFD.	"	1500KC	Tune for maximum output.	"	A7	" " " "

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PARTS LIST AND DESCRIPTIONS

DEWALD
MODELS A-602, A-605

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		DEWALD PART No.	STANDARD REPLACEMENT		
1	RF Amp.	12SK7GT	12SK7GT	8N	
2	Converter	12SA7GT	12SA7GT	8AD	
3	IF Amp.	12SK7	12SK7	8N	
4	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	DEWALD PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	
7A	30	150	2005-1	EL-230	AF66D	UP3315	FP211	DY-2x30-150	■ Filter
B	30	150							▲ "
8	.05	400		TC-15	484-05	DT4S5	TP426	S-4-05	Line Bypass
9	.01	400		TC-11	484-01	DT4S1	TP421	S-4-01	Output Plate Bypass
10	.002	600		TC-22	684-002	DT6D2	TP405	S-6-002	Tone Compensation
11	.01	400		TC-11	484-01	DT4S1	TP421	S-4-01	Audio Coupling
12	.01	400		TC-11	484-01	DT4S1	TP421	S-4-01	" "
13	.05	400		TC-15	484-05	DT4S5	TP426	S-4-05	AVC Filter
14	.05	400		TC-15	484-05	DT4S5	TP426	S-4-05	RF Bypass Pwr. Supp.
15	.02	400		TC-12	484-02	DT4S2	TP423	S-4-02	Ant. Isolation
16	.05	400		TC-15	484-05	DT4S5	TP426	S-4-05	Phono Isolation
17	220	500		1FM-32	1468-0002	5W5T2	MC237	MO.5-322	Audio Plate Bypass
18	220	500		1FM-32	1468-0002	5W5T2	MC237	MO.5-322	IF Bypass Vol. Cont.
19	100	500		1FM-31	1468-0001	5W5T1	MC235	MO.5-31	RF Coupling

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	DEWALD PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
20A	500KΩ	1	3002	MR48	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	F	RS-2	Attach to 20A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

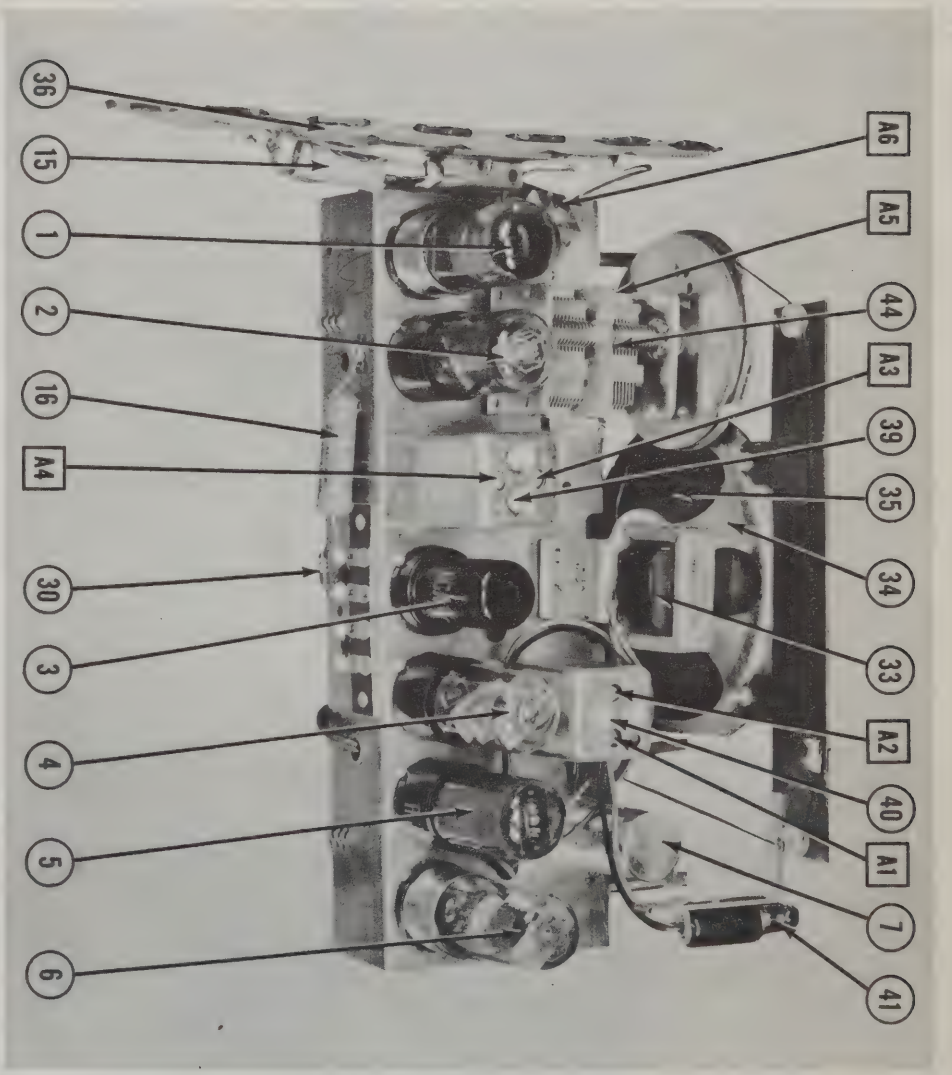
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	DEWALD PART No.	IRC PART No.	
21	6800Ω	½		BTS-6800	Blue-Gray-Red RF Plate Load
22	22KΩ	½		BTS-22K	Red-Red-Or. Osc. Grid
23	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Converter Grid
24	2.2 Meg.	½		BTS-2.2 Meg	Red-Red-Grn. AVC Network
25	220Ω	½		BW-½-220	Red-Red-Br. IF Cathode
26	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. 1st AF Plate Load
27	4.7 Meg.	½		BTS-4.7 Meg	Yl.-Vi.-Grn. 1st AF Grid
28	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
29	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
30	220KΩ	½		BTS-220K	Red-Red-Yl. Phono Shunt
31	1500Ω	2	3004	BT-2-1500	Br.-Grn.-Red Filter
32	15Ω	½		BW-½-15	Br.-Grn.-Blk. Rectifier Ballast

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		DEWALD PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
33	2500Ω	3.7Ω	230Ω	.8Ω	Part of 7001A	A-3876	T22S45		

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: DEWALD PART No.	REPLACEMENT DATA: JENSEN PART No.	REPLACEMENT DATA:	INSTALLATION NOTES
	FIELD	VC IMP.		ST-107		
34	PM	3.7Ω	7001A	Mod. P5-V		
	CONE DIA.	VC DIA.				
35	4-5/8"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

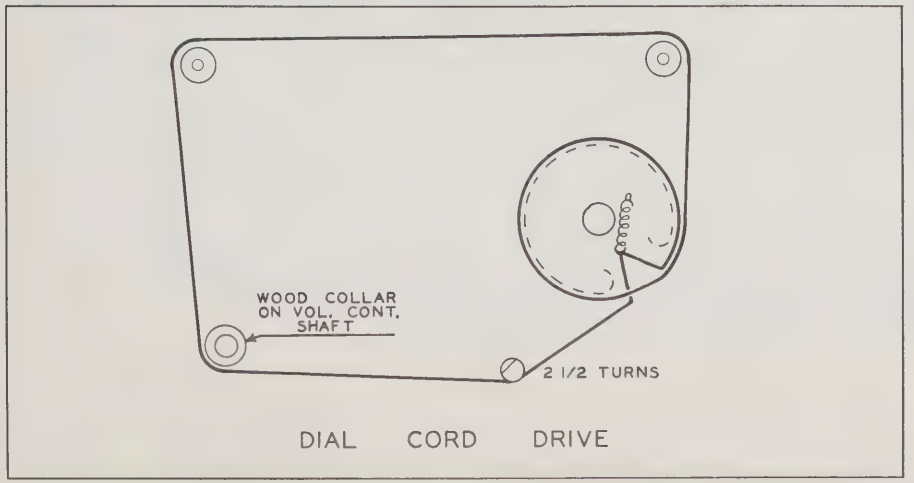
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: DEWALD PART No.	REPLACEMENT DATA: MEISSNER PART No.	
36	Loop Ant.	.1Ω	1.3Ω	1004		
37	Osc. Coil		6Ω	1006	14-1040	Add 50MMFD from grid to high side of tuning cap.
38	Wave Trap		41Ω	1005		
39	Input IF	18.5Ω	18.5Ω	1000	16-6658	
40	Output IF	29Ω	29Ω	1002	16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: DEWALD PART No.	REPLACEMENT DATA:	INSTALLATION NOTES
41	Bayonet	6-8	0.15	Brown			Type 47

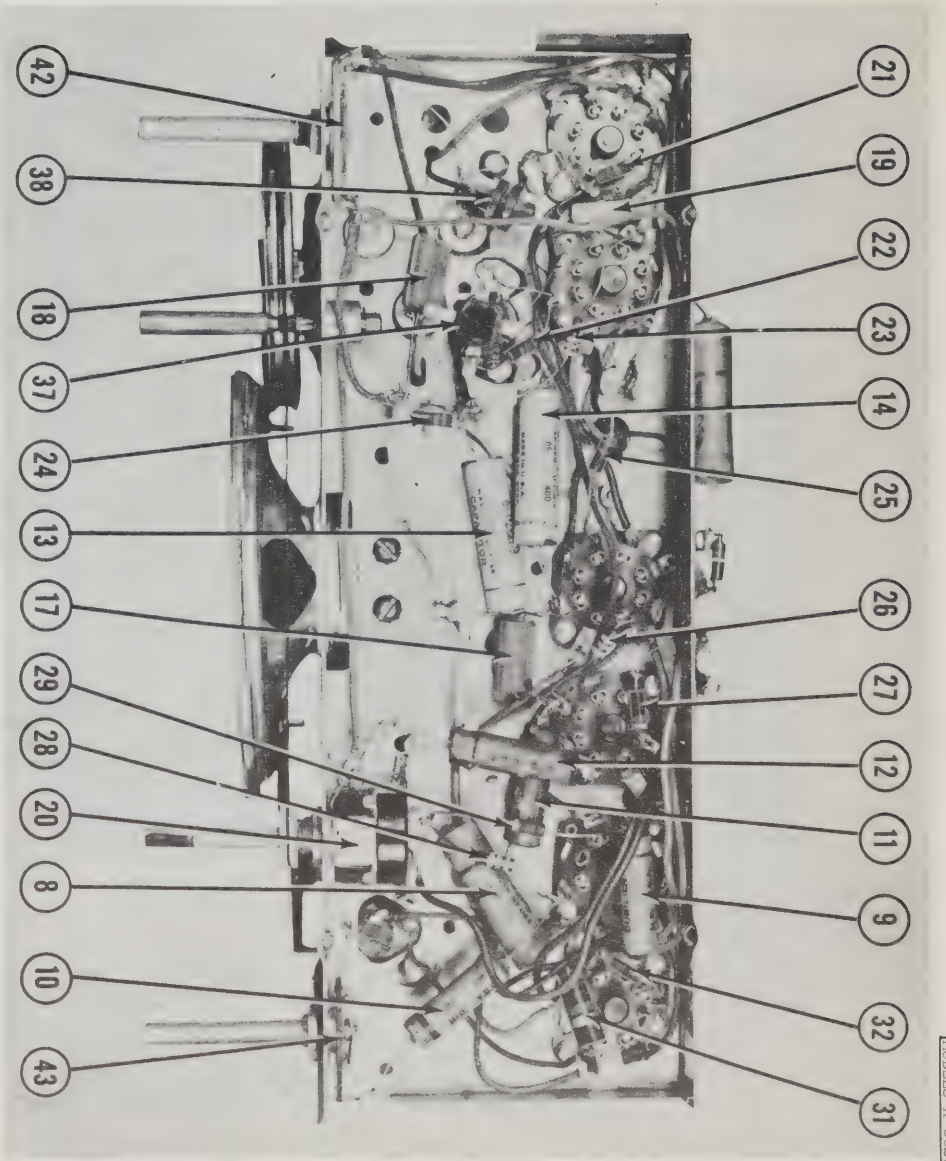
MISCELLANEOUS

ITEM No.	PART NAME	DEWALD PART No.	NOTES
42	Switch	8004	Radio-Phono
43	"	8003	Tone
44	2 Gang Var. Cap.	2003	(20-456 MMF, 29-188 MMF)
	Dial Scale	6002	
	XTAL Pickup	8009	
	Record Changer	8008	Automatic
	" "	8011	Manual

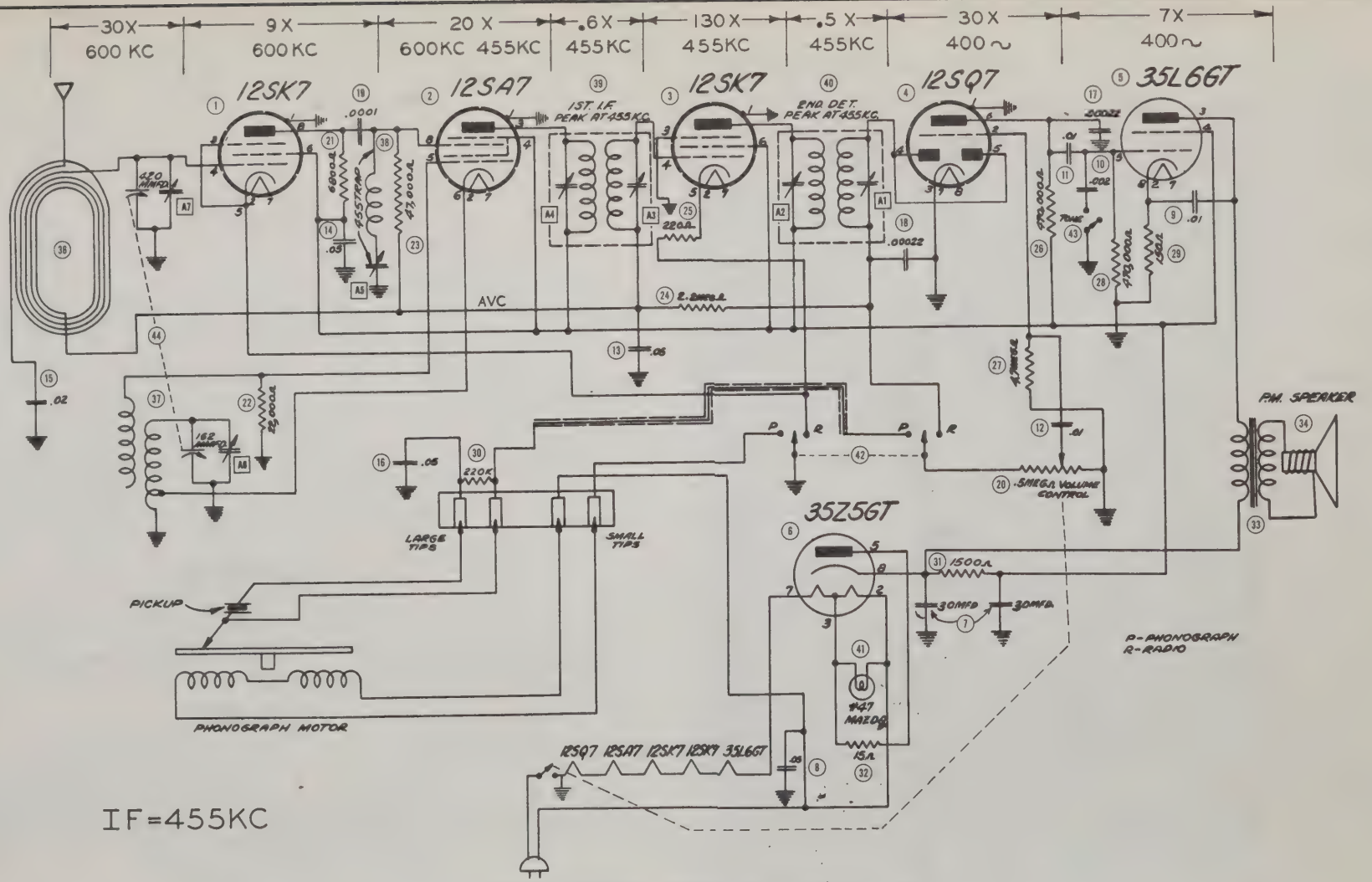


DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



DEWALD MODELS A-602, A-606



VOLTAGE & RESISTANCE READINGS TAKEN IN BROADCAST POSITION

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	0V.	25V.AC	0V.	-.4V.DC	0V.	82V.AC	37V.AC	68V.DC
2	12SA7GT	0V.	25V.AC	82V.DC	82V.DC	-.55V.DC	0V.	12V.AC	-.25V.DC
3	12SK7GT	0V.	37V.AC	0V.	-.4V.DC	2V.DC	82V.AC	50V.AC	82V.DC
4	12SQ7GT	0V.	-.6V.DC	0V.	-.4V.DC	-.4V.DC	55V.DC	12V.AC	0V.
5	35L6GT	0V.	85V.AC	120V.DC	82V.DC	0V.	0V.	50V.AC	4.7V.DC
6	35Z5GT	0V.	117V.DC	112V.AC	0V.	110V.DC	0V.	85V.AC	123V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	0Ω	24Ω	0Ω	2.4MEG	0Ω	60KΩ	34Ω	65KΩ
2	12SA7GT	0Ω	24Ω	60KΩ	60KΩ	24KΩ	.5Ω	12KΩ	2.4MEG.
3	12SK7GT	0Ω	34Ω	0Ω	2.4MEG	200Ω	60KΩ	44Ω	60KΩ
4	12SQ7GT	0Ω	4 MEG.	0Ω	400KΩ	400KΩ	530KΩ	12Ω	0Ω
5	35L6GT	INF.	74Ω	60KΩ	60KΩ	490KΩ	INF.	44Ω	140Ω
6	35Z6GT	INF.	100Ω	96Ω	INF.	110Ω	INF.	74Ω	60KΩ

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

476-10

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

ECA
MODEL 105

ECA
MODEL 105

ECA MODEL 105

TRADE NAME	ECA, Model 105
MANUFACTURER	Electronic Corp.,of America, 164- 54th St., Brooklyn 32, N.Y.
TYPE SET	AC Operated Combination Radio-Phono - Superheterodyne with Loop Antenna
TUBES (FIVE)	Types, 12SA7 Converter, 12SK7GT IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT/G Rectifier.
POWER SUPPLY	110-125 Volts AC
TUNING RANGE—BROADCAST	530-1725 KC RATING .250 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap fully closed and set pointer 1-19/32" from left edge of dial backplate. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control at maximum position, output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to rear stator of tuning cap. Low side to B-.	455KC	Tuning cap. open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001 MFD. to reduce hum modulation.
200MMFD	High side to ext. ant. lead. Low side to chassis.	1500KC	5-11/16" from left edge of dial backplate.	"	A5	Adjust for maximum output.
200MMFD	"	"	Tune for maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		ECA PART No.	STANDARD REPLACEMENT		
1	Converter	12SA7	12SA7	8R	
2	IF Amp.	12SK7GT	12SK7GT	8N	
3	Det.-AVC-AF	12SQ7	12SQ7	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT/G	35Z5GT/G	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	ECA PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	
6A	50	150	S-CE122M	TA-530	PRSA150-50-30	BRD3515	2N520	M-5030-150	Filter - Red
B	30	150							" Blue
7	.05	200	CP-105D	TC-15	484-05	DT4S5	TP426	S-4-05	Line Filter
8	.02	400	CP-104E	TC-12	484-02	DT4S2	TP423	S-4-02	Audio Coupling
9	.002	400	CP-122E	TC-22	484-002	DT6D2	TP405	S-6-002	Tone Compensation
10	.004	600		TC-24	684-004	DT6D4	TP407	S-6-004	Audio Coupling
11	.2	200	CP-133D	TC-2	484-.2	DT4P2	TP429	S-4-2	Line Isolation
12	.05	200	CP-105D	TC-15	484-05	DT4S5	TP426	S-4-05	AVC Filter
13	.004	600		TC-24	684-004	DT6D4	TP407	S-6-004	Ant. Isolation
14	250	500	CM-112E	1FM-325	1468-00025	5W5T25	MC240	MO.5-325	Audio Plate Bypass
15	100	500	CM-103E	1FM-31	1468-0001	5W5T1	MC235	MO.5-31	Diode Filter
16	100	500	CM-103E	1FM-31	1468-0001	5W5T1	MC235	MO.5-31	" "
17	100	500	CM-103E	1FM-31	1468-0001	5W5T1	MC235	MO.5-31	Osc. Grid Capacitor

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	ECA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
18A	1 Meg.	1		UM159	D11-137	M-61-S	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 18A per instructions
C	Switch			M26	41	SW-A	" " " " "
19A	500KΩ	1	SRV174-2	MR48	D13-133	M-60-Z	Tone Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 19A per instructions

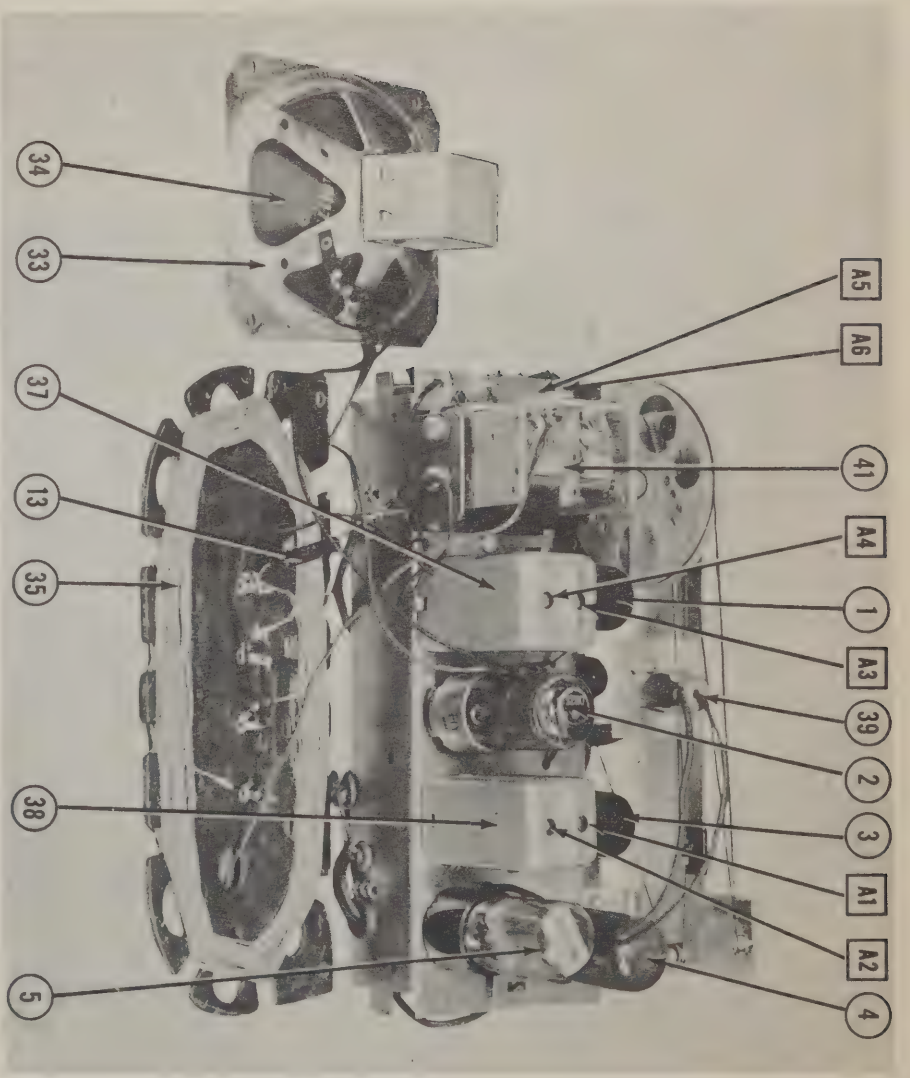
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	ECA PART No.	IRC PART No.	
20	220KΩ	1/4	RS-190B	BTS-220K	Red-Red-Yl. Line Isolation
21	27KΩ	1/4	RS-193B	BTS-27K	Red-Vi.-Or. Oscillator Grid
22	2.2 Meg.	1/4	RS-223B	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
23	56KΩ	1/4	RS-229B	BTS-56K	Grn.-Blue-Or. Diode RF Filter
24	100KΩ	1/4	RS-120B	BTS-100K	Br.-Blk.-Yl. Series Phono
25	27KΩ	1/4	RS-193B	BTS-27K	Red-Vi.-Or. Phono Shunt
26	4.7 Meg.	1/4	RS-237B	BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
27	220KΩ	1/4	RS-190B	BTS-220K	Red-Red-Yl. AF Plate Load
28	470KΩ	1/4	RS-189B	BTS-470K	Yl.-Vi.-Yl. Output Grid
29	150Ω	1/2	RS-135C	BW-1-150	Br.-Grn.-Br. Output Cathode
30	27KΩ	1	RS-193D	BTA-27K	Br.-Red-Or. Bias Bleeder
31	1500Ω	2	RS-195C	BT-2-1500	Br.-Grn.-Red Filter

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		ECA PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
32	2550Ω	3.4Ω	177Ω	1.02Ω	S-TA-115	A-3876	T22845		

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			ECA PART No.	JENSEN PART No.		
	FIELD	VC IMP.				
33A	PM	3.4Ω	S-QL-107			
B			S-QL-104			Alternate Speaker
	CONE DIA.	VC DIA.				
34	4"x6"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

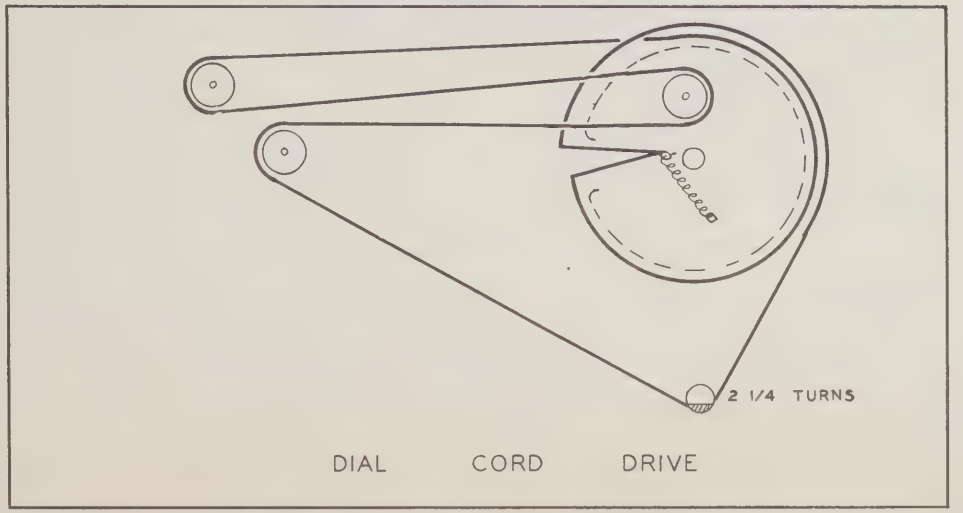
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	ECA PART No.	MEISSNER PART No.	
35	Loop Ant.	.1Ω	1.3Ω	B-ZQ587		
36	Osc. Coil		6Ω	S-LR-120		
37	Input IF	15.5Ω	15.5Ω	S-LR-127	16-6658	
38	Output IF	31Ω	32Ω	S-LR-129	16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					ECA PART No.		
39	Bayonet	6-8	0.15	Brown	1P-214		Type 47

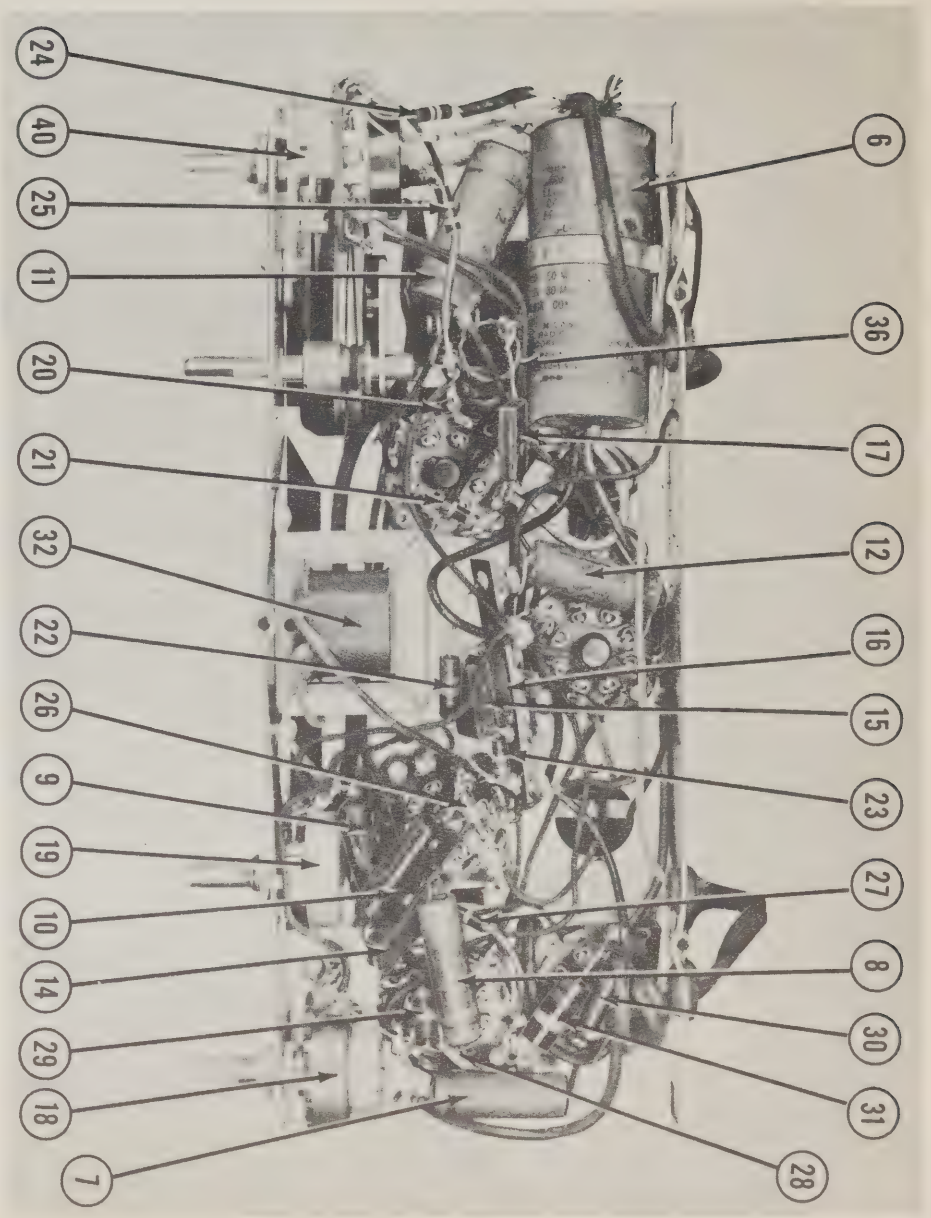
MISCELLANEOUS

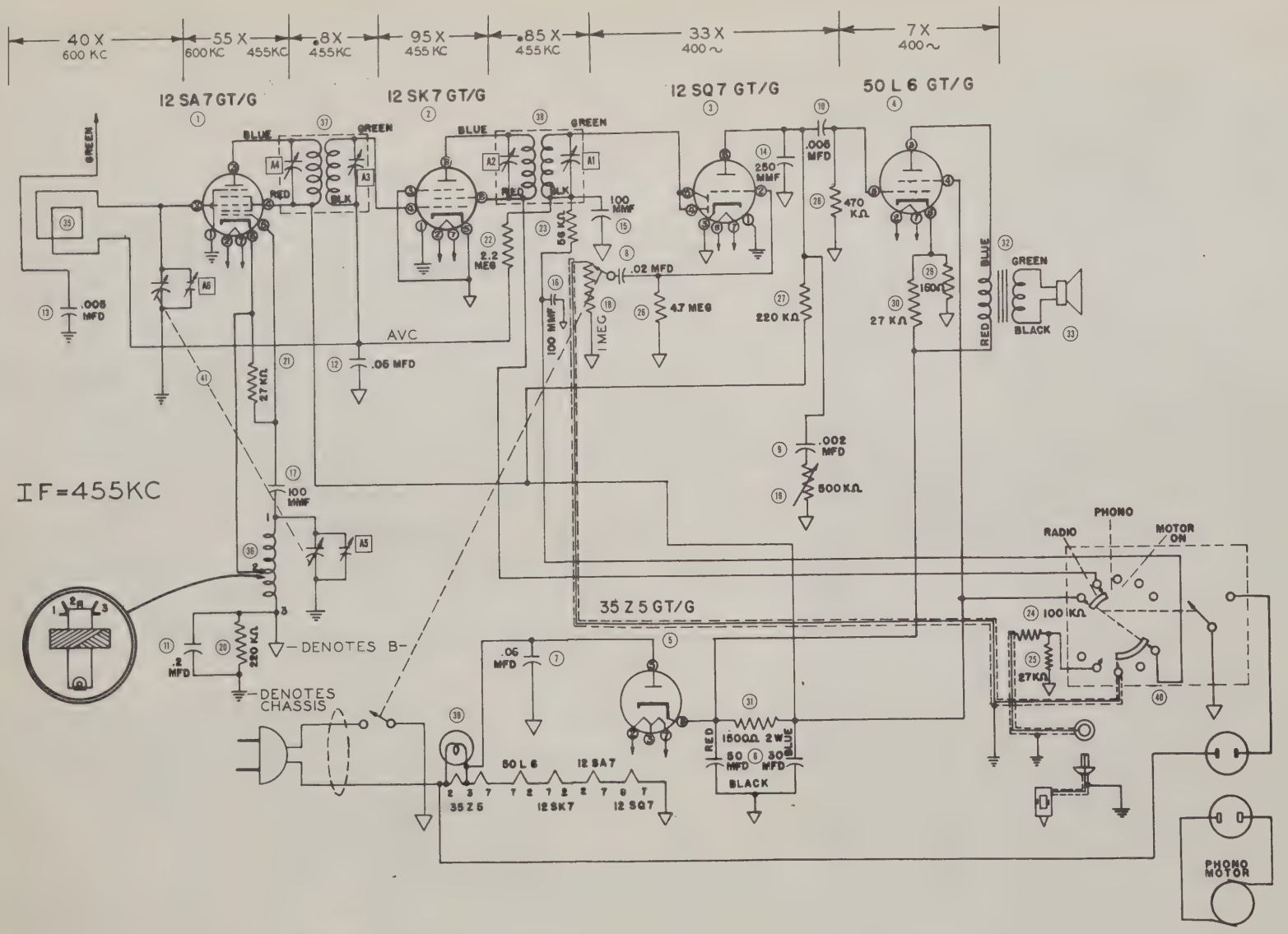
ITEM No.	PART NAME	ECA PART No.	NOTES
40	Switch	S-SR-136-2	Radio-Phono
41	2 Gang Var. Cap.	S-ZQ-501	(21-462 MMF, 32-192 MMF)
	Phono Pickup	QP-100	
	Phono Motor	TT-100-1,-2	Turntable Included
	Dial Glass	A-AQ-649-1	
	Dial Scale	C-NP-155-5	
	Pointer	A-AQ-765-1	



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





VOLTAGE AND RESISTANCE TAKEN IN BROADCAST POSITION

Pin No	12SA7 Volt	12SA7 Res	12SK7 Volt	12SK7 Res
1	0V.	230KΩ	0V.	230KΩ
2	25V.AC	25Ω	25V.AC	25Ω
3	85V.DC	20KΩ	0V.	0Ω
4	85V.DC	20KΩ	-4V.DC	4 MEG.
5	-5.8V.DC	28KΩ	0V.	0Ω
6	0V.	.5Ω	85V.DC	20KΩ
7	13V.AC	12Ω	37V.AC	33Ω
8	-4V.DC	3 MEG.	85V.DC	20KΩ

Pin No	12SQ7 Volt	12SQ7 Res	50L6 Volt	50L6 Res
1	0V.	230KΩ	0V.	INF.
2	-4V.DC	4 MEG.	37V.AC	33Ω
3	0V.	0Ω	115V.DC	20KΩ
4	-3V.DC	800KΩ	85V.DC	20KΩ
5	-3V.DC	800KΩ	0V.	400KΩ
6	55V.DC	260KΩ	0V.	INF.
7	0V.	0Ω	85V.AC	80Ω
8	13V.AC	12Ω	6.2V.DC	140Ω

Pin No.	35Z5 Volt	35Z5 Res
1	0V.	INF.
2	117V.AC	105Ω
3	113V.AC	102Ω
4	6.2V.DC	140Ω
5	113V.AC	102Ω
6	0V.	INF.
7	85V.AC	80Ω
8	122V.DC	20KΩ

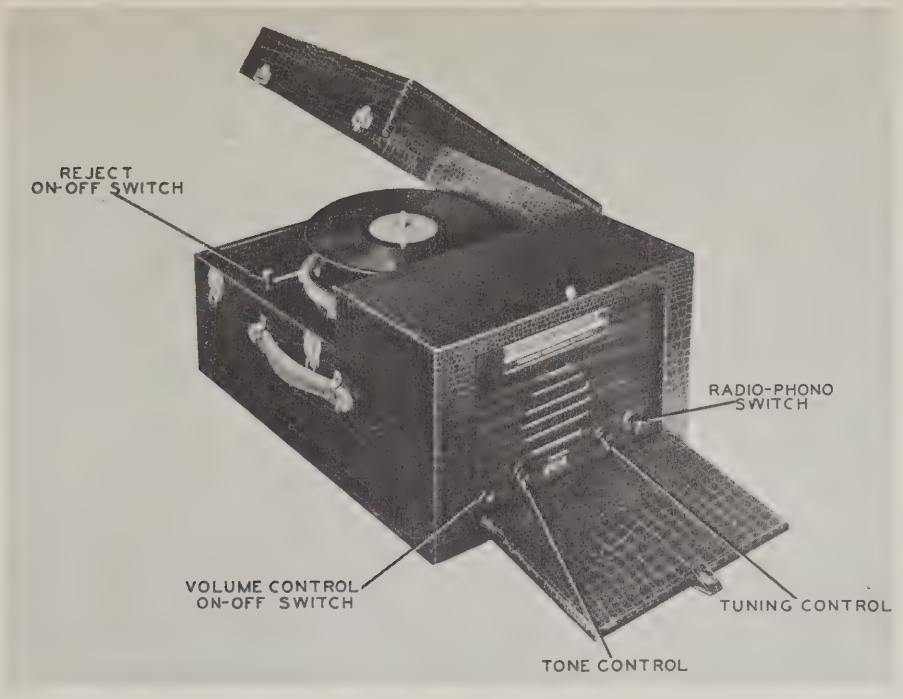
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

476-11

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



ECA MODEL 131

TRADE NAME	ECA, Model 131
MANUFACTURER	Electronic Corp. of America, 170 53rd St., Brooklyn 32, N.Y.
TYPE SET	AC Operated Radio-Phono Combination Superheterodyne with Loop Antenna
TUBES (FIVE)	Types, 12SA7 Converter, 12SK7GT IF Amp., 12SQ7 Det.-AVC-AF, 12SK7GT AF Amp., 50L6GT Power Output.
POWER SUPPLY	110-120 Volts AC
TUNING RANGE—BROADCAST	540-1750KC RATING .330 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set dial pointer, turn tuning cap fully closed and set left edge of dial pointer saddle 1-9/16" from left end of dial backplate. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and B-. Volume control should be at maximum. Output of signal generator should be no higher than necessary to obtain an output reading. Use an isulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to rear stator of tuning cap. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001 MFD. to reduce hum modulation.
200MMFD	High side to ext. ant. lead. Low side to chassis.	1500KC	5-9/16" from left end of dial backplate to left edge of dial pointer saddle.	"	A5	Adjust for maximum output.
200MMFD	"	"	Tune for maximum output.	"	A6	" " " "

DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type knobs from front of cabinet.
2. Remove six Phillips head screws holding changer mounting. Lift up changer.
3. Disconnect phono-motor plug.
4. Disconnect phono-pick-up plug.
5. Lift out changer.
6. Remove two Phillips head screws holding panel back of chassis. Remove panel.
7. Remove four Phillips head screws holding chassis at back of front panel. Remove chassis.
8. Remove three self-tapping screws holding chassis to mounting board. Remove mounting board.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: ECA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SA7	12SA7	8R	
2	IF Amp.	12SK7GT	12SK7GT	8N	
3	Det.-AVC-AF	12SQ7	12SQ7	8Q	
4	AF Amp.	12SK7GT	12SK7GT	8N	
5	Power Output	50L6GT	50L6GT	7AC	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ECA PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	50	150	S-CE122M	TA-530	PRSA150-50-30	BRD3515	2N520	M-5030-150	Filter - Red
B	30	150							" - Green
7	.05	400	CP105E	TC-15	484-05	DT4S5	TP426	S-4-05	Line Filter
8	.002	400	CP122E	TC-22	484-002	DT6D2	TP405	S-6-002	Audio Coupling
9	.02	400	CP104E	TC-12	484-02	DT4S2	TP423	S-4-02	Tone Compensation
10	.002	400	CP122E	TC-22	484-002	DT6D2	TP405	S-6-002	Audio Coupling
11	.002	400	CP122E	TC-22	484-002	DT6D2	TP405	S-6-002	" "
12	.05	200	CP105D	TC-15	484-05	DT4S5	TP426	S-4-05	AVC Filter
13	.2	200	CP133D	TC-2	484-.2	DT4P2	TP429	S-4-2	Line Isolation
14	.005	200	CP116D	TC-25	484-005	DT6D5	TP408	S-6-005	Ant. Isolation
15	250	500	CM112E	1FM-325	1468-00025	5W5T25	MC240	M0.5-325	Audio Plate Bypass
16	100	500	CM103E	1FM-31	1468-0001	5W5T1	MC235	M0.5-31	Diode Filter
17	100	500	CM103E	1FM-31	1468-0001	5W5T1	MC235	M0.5-31	" "
18	100	500	CM103E	1FM-31	1468-0001	5W5T1	MC235	M0.5-31	Osc. Grid Capacitor
19	500	500	S-4054-341	1FM-35	1468-0005	5W5T5	MC245	M0.5-35	RF Coupling

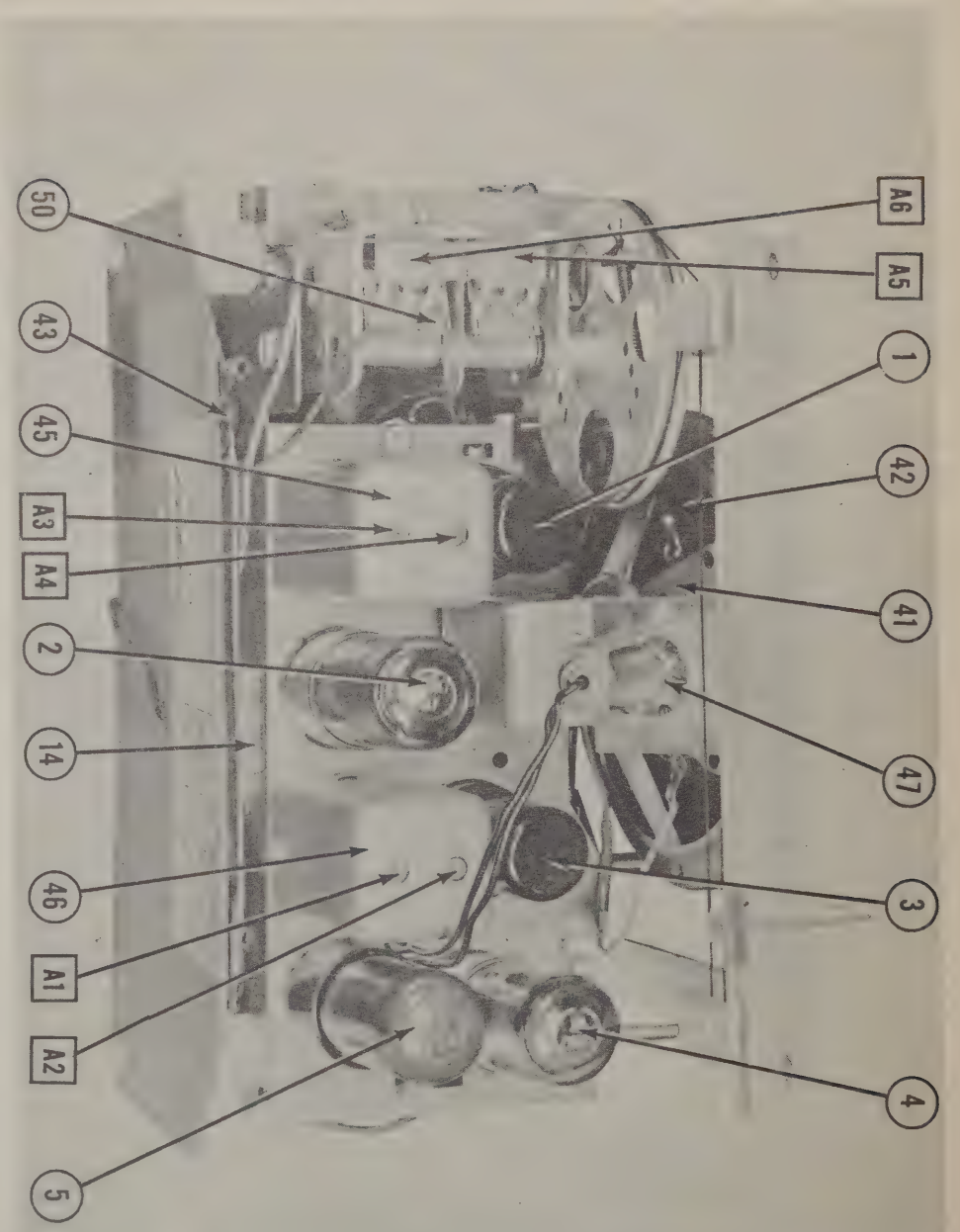
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ECA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
20A	500KΩ	1	S-RV171-1	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 20A per instructions.
C	Switch		" "	M26	41	SW-A	" " " " "
21A	500KΩ	1	S-4V174-1	MR48	D13-133	M-60-Z	Tone Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 21A per instructions.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ECA PART No.	IRC PART No.	IDENTIFICATION CODES
22	2.2 Meg.	1/4	RP223B	BTS-2.2 Meg.	Red-Red-Grn. Converter Grid
23	27KΩ	1/4	RS193BA	BTS-27K	Red-Vi.-Or. Oscillator Grid
24	220KΩ	1/4	RS190B	BTS-220K	Red-Red-Yl. Line Isolation
25	2.2 Meg.	1/4	RP223B	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
26	50KΩ	1/4		BTS-56K	Grn.-Blk.-Or. Diode RF Filter
27	4.7 Meg.	1/4	RS237B	BTS-4.7 Meg.	Yl.-Vi.-Grn. 1st AF Grid
28	470KΩ	1/4	RS189BA	BTS-470K	Yl.-Vi.-Yl. 1st AF Plate Load
29	470KΩ	1/4	RS189BA	BTS-470K	Yl.-Vi.-Yl. 2nd AF Grid
30	470KΩ	1/4	RS189BA	BTS-470K	Yl.-Vi.-Yl. 2nd AF Grid
31	3300Ω	1/4	S-450-61-10	BTS-3300	Or.-Or.-Red 2nd AF Cathode
32	47KΩ	1/4	S-450-89-10	BTS-47K	Yl.-Vi.-Or. 2nd AF Plate Load
33	470KΩ	1/4	RS189BA	BTS-470K	Yl.-Vi.-Yl. Output Grid
34	150Ω	1/2	RS135CA	BW-½-150	Br.-Grn.-Br. Output Cathode
35	15Ω	1	S-452-5-20	BW-1-15	Br.-Grn.-Blk. Rectifier Ballast
36	100Ω	5	S454C-10	AB-100	Line Dropping
37	1500Ω	2	RS195EA	BT-2-1500	Br.-Grn.-Red Filter
38	330KΩ	1/4	S-450-109-20	BTS-330K	Or.-Or.-Yl. Series Phono
39	100KΩ	1/4	RS120B	BTS-100K	Br.-Blk.-Yl. Phono Shunt

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		ECA PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
40	2000Ω	3.25Ω	110Ω tapped @ 5Ω	.4Ω	S-1021	A-3876*			*Add extra filter to reduce hum level.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			ECA PART No.	JENSEN PART No.		
41	FIELD PM	VC IMP. 3.25Ω	S-QL-104	ST-107 Mod. P5-V		
42	CONE DIA. 4-5/8"	VC DIA. 9/16"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

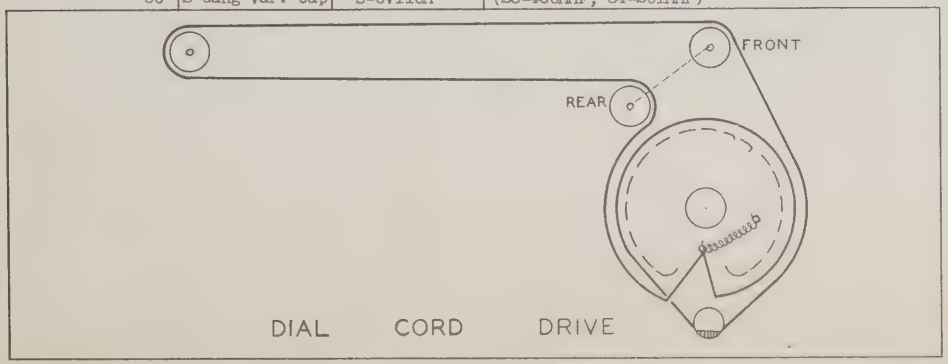
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	ECA PART No.	MEISSNER PART No.	
43	Loop Ant.	0Ω	1Ω	C-ZQ-499		
44	Osc. Coil		5.5Ω	S-LR-120	14-1040	
45	Input IF	15.5Ω	15.5Ω	S-LR-127	16-6658	
46	Output IF	10Ω	10Ω	S-LR-129	16-6660	

DIAL LIGHT

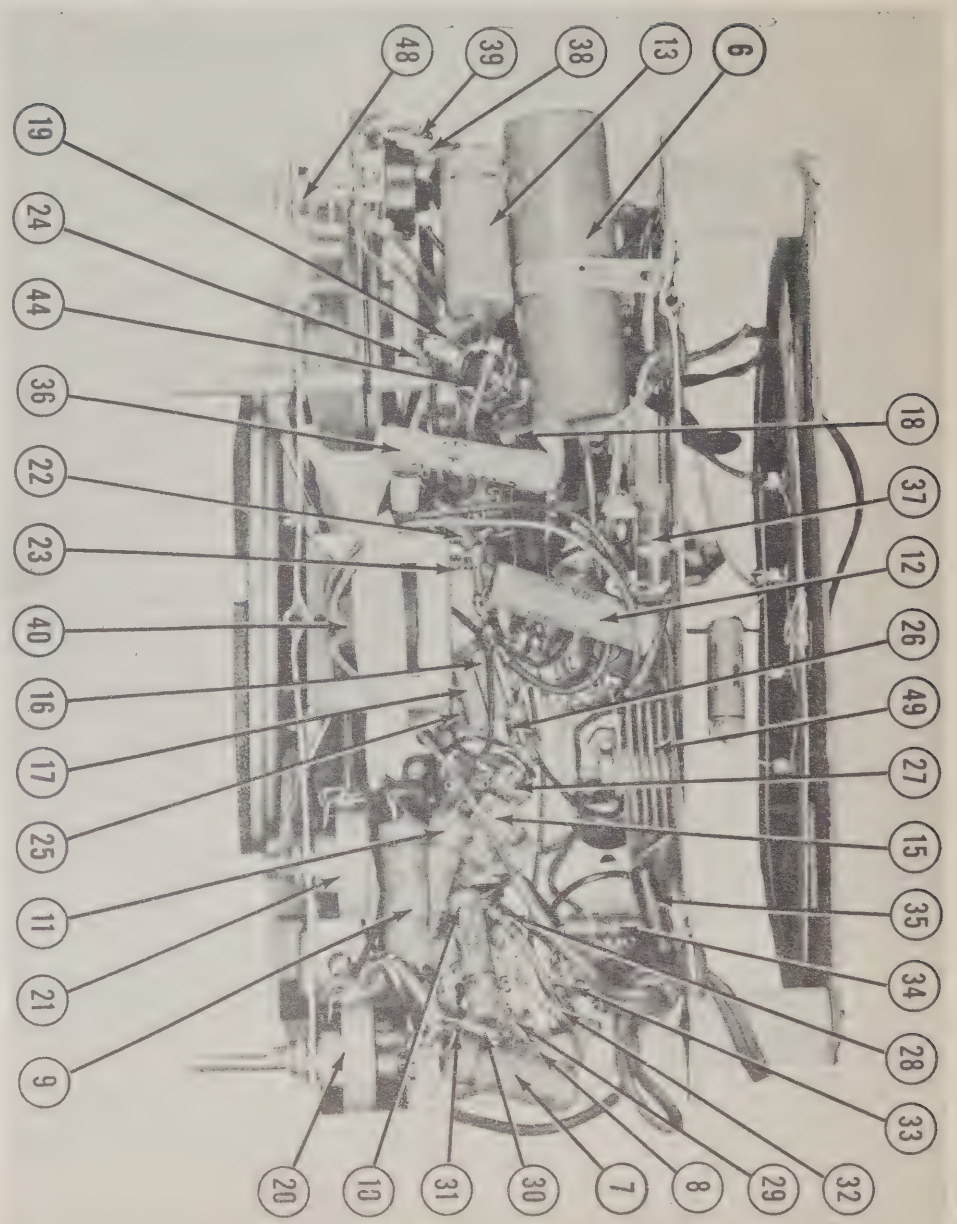
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					ECA PART No.		
47	Screw	120	.030		IP-115		3W 120V

MISCELLANEOUS

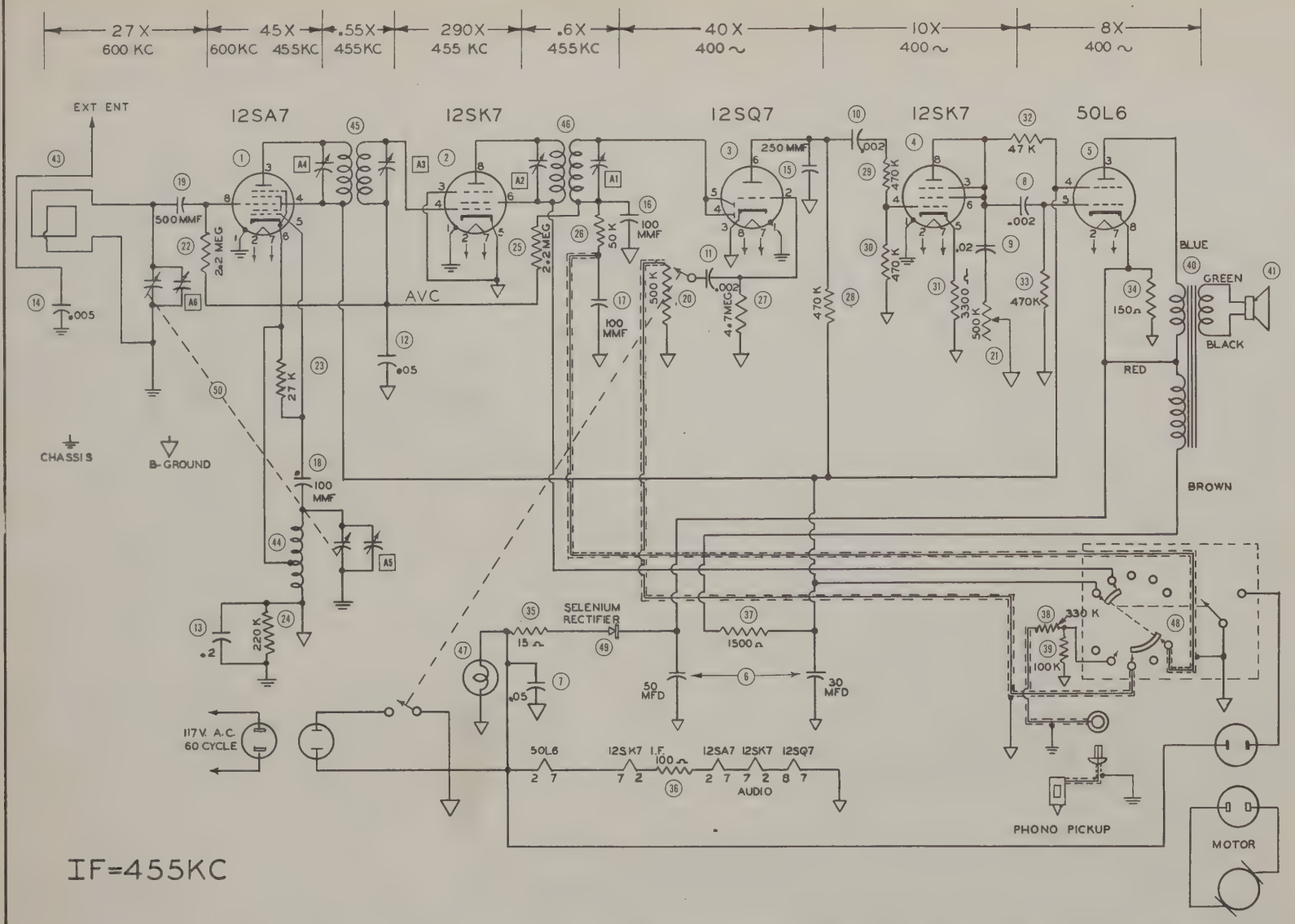
ITEM No.	PART NAME	ECA PART No.	NOTES
48	Switch	S-SR136-1	Radio-Phono
49	Rectifier	S-1383	Selenium-Federal Type 403D2625
50	2 Gang Var. Cap	S-CV110M	(23-460MMF, 34-201MMF)



CHASSIS—BOTTOM VIEW



ECA MODEL 131



VOLTAGE AND RESISTANCE TAKEN IN BROADCAST POSITION

Pin No	12SA7 Volt	12SA7 Res	12SK7GT Volt	12SK7GT Res
1	0V.	170KΩ	0V.	170KΩ
2	25V.AC	22 Ω	50V.AC	100 Ω
3	100V.DC	22KΩ	0V.	0Ω
4	100V.DC	22KΩ	-1V.DC	2.7MEG.
5	-6.5V.DC	22KΩ	0V.	0Ω
6	0V.	.5Ω	100V.DC	22KΩ
7	36V.AC	32Ω	60V.AC	110Ω
8	-.75V.AC	4.6MEG	100 V.DC	22KΩ

Pin No	12SQ7GT Volt	12SQ7GT Res	12SK7GT Volt	12SK7GT Res
1	0V.	170KΩ	0V.	170KΩ
2	-.4V.DC	4.5MEG	13V.AC	12Ω
3	0V.	0Ω	45V.DC	70KΩ
4	-.4V.DC	540KΩ	0V.	480KΩ
5	-.4V.DC	540KΩ	4V.DC	3KΩ
6	60V.DC	500KΩ	45V.DC	70KΩ
7	0V.	0Ω	25V.AC	22Ω
8	13V.AC	12Ω	45V.DC	70KΩ

Pin No	50L6GT Volt	50L6GT Res
1	117V.AC	135Ω
2	117V.AC	135Ω
3	137V.DC	22KΩ
4	137V.DC	22KΩ
5	0V.	400KΩ
6	0V.	0Ω
7	60V.AC	110Ω
8	5.8V.DC	135Ω

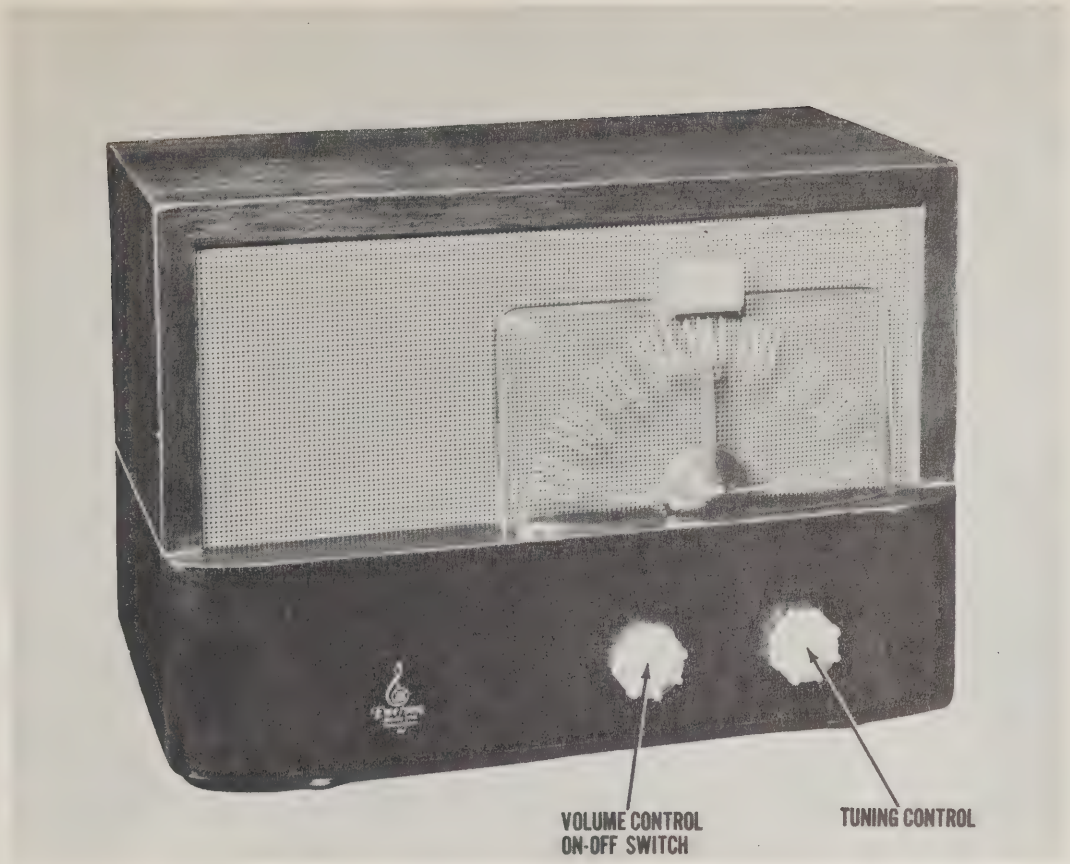
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

476-12

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



EMERSON
MODEL 541

EMERSON
MODEL 541

EMERSON MODEL 541

TRADE NAME Emerson, Model 541
MANUFACTURER Emerson Radio & Phono. Corp., 111 Eighth Ave., New York 11, N.Y.
TYPE SET AC-DC Operated Superheterodyne - Self Contained Loop Antenna
TUBES (FIVE) Types, 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.

POWER SUPPLY 105-125 Volts AC-DC
TUNING RANGE—BROADCAST 540-1620KC RATING .240 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and B-. Volume control at maximum position, output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to rear stator of tuning cap. Low side to B-.	455KC	Tuning cap. fully open.	Across the voice coil.	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001 MFD. to reduce hum modulation.
	Loop	1620KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
	"	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SA7	12SA7	8R	
2	IF Amp.	12SK7	12SK7	8N	
3	Det.-AVC-AF	12SQ7	12SQ7	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT/G	35Z5GT/G	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: EMERSON PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	50	150	925000	TA-530	PRSA150-50-30	BRD3515	2N520	M-5030-150	Filter - Red
B	30	150							" - Green
7	16	150		UT-161	PRS150-16	BR1615	TC44	M-16-150	" †
8	.05	400	920030	TC-15	484-05	DT4S5	TP426	S-4-05	Line Filter
9	.2	200	920050	TC-2	484-.2	DT4P2	TP429	S-4-2	Line Isolation
10	.02	400	920020	TC-12	484-02	DT4S2	TP423	S-4-02	Output Plate Bypass
11	.0005	600	920240	TC-35	1468-0005	DT6T5	TP403	S-6-0005	Audio Plate Bypass
12	.02	400	920020	TC-12	484-02	DT4S2	TP423	S-4-02	Audio Coupling
13	.002	600	920010	TC-22	684-002	DT6D2	TP405	S-6-002	" "
14	.1	200	920040	TC-1	484-.1	DT4P1	TP428	S-4-1	AVC Filter
15	.002	600	920010	TC-22	684-002	DT6D2	TP405	S-6-002	Ext. Ant. Coupling †
16	220	500	910000	1FM-32	1468-0002	5W5T2	MC237	MO.5-322	IF Bypass Vol. Cont.

†Not used on all models.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EMERSON PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
17A	500KΩ	1	390000	UM156	D11-133	AM-58-8	Volume Control
B	Shaft		Not Req.	S825	E	KSS-3	Attach to 17A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

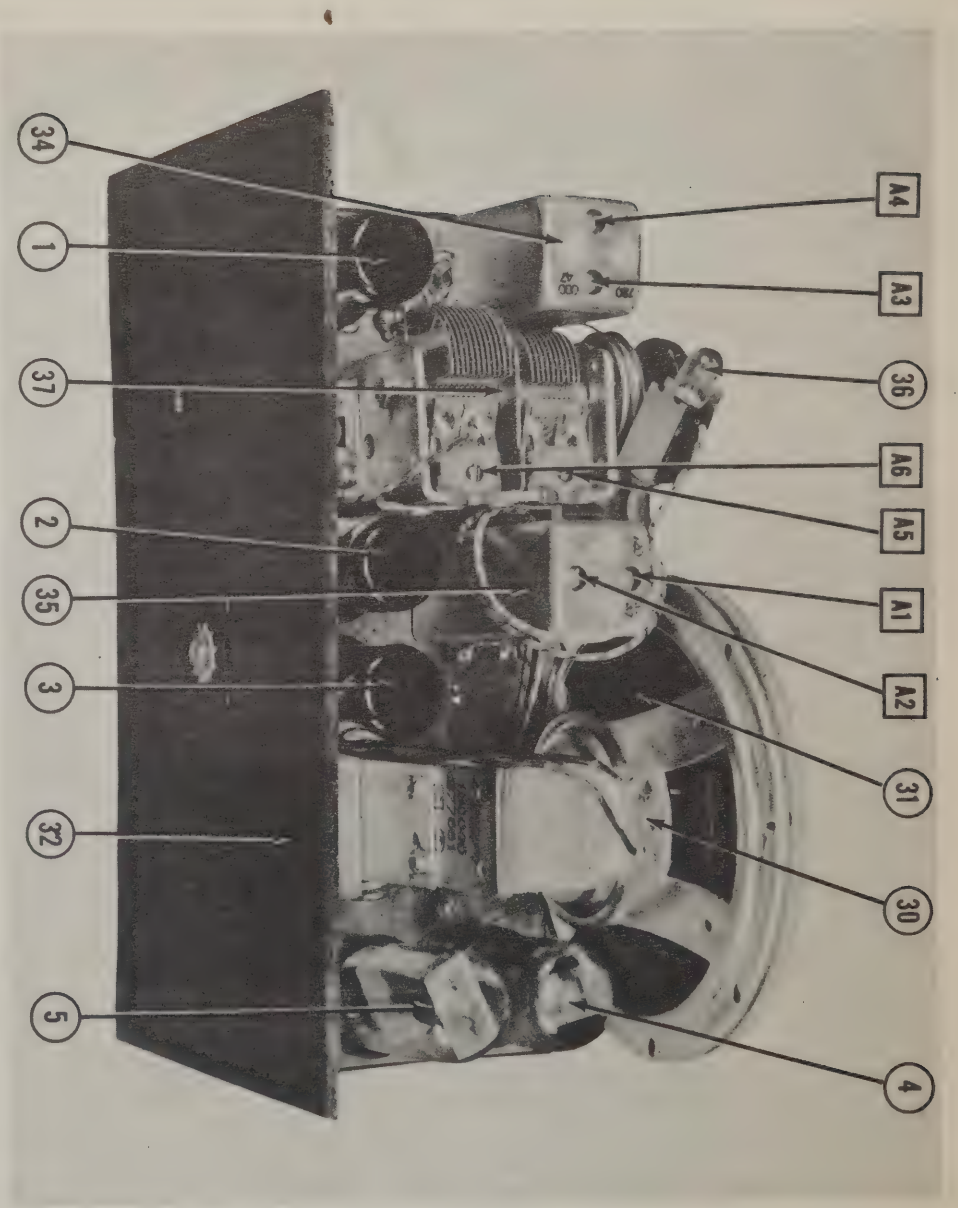
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EMERSON PART No.	IRC PART No.	IDENTIFICATION CODES
18	22KΩ	1/4	310810	BTS-22K	Red-Red-Or. Oscillator Grid
19	15 Meg.	1/4	397000	BTS-15 Meg.	Br.-Grn.-Blue AVC Network
20	3.3 Meg.	1/4	321330	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
21	15 Meg.	1/4	397000	BTS-15 Meg.	Br.-Grn.-Blue AF Grid
22	470KΩ	1/4	321130	BTS-470K	Yl.-Vi.-Yl. AF Plate Load
23	470KΩ	1/4	321130	BTS-470K	Yl.-Vi.-Yl. Output Grid
24	150Ω	1/2	440290	BW-½-150	Br.-Grn.-Br. Output Cathode
25	1000Ω	1	370490	BTA-1000	Br.-Blk.-Red Filter
26	220KΩ	1/4	321050	BTS-220K	Red-Red-Yl. Line Isolation
27	15Ω	1	397040	BW-1-15	Br.-Grn.-Br. Rectifier Ballast
28	6.8Ω	1/4	340010	BW-¼-6.8	Series Pilot Light
38	100Ω	1		BW-1-100	Br.-Blk.-Br. Filter - See Note 1

Note 1 - Not used in all models.

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: EMERSON PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
29	2010Ω	3.2Ω	224Ω tapped @ 9Ω	.85Ω	734000	A-3876*			*Add extra filter to reduce hum level.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: EMERSON PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.		ST-107‡		‡Fabricate new mounting bracket.
30	PM	3.2Ω	180000	Mod. P5-V		
	CONE DIA.	VC DIA.				
31	4-5/8"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

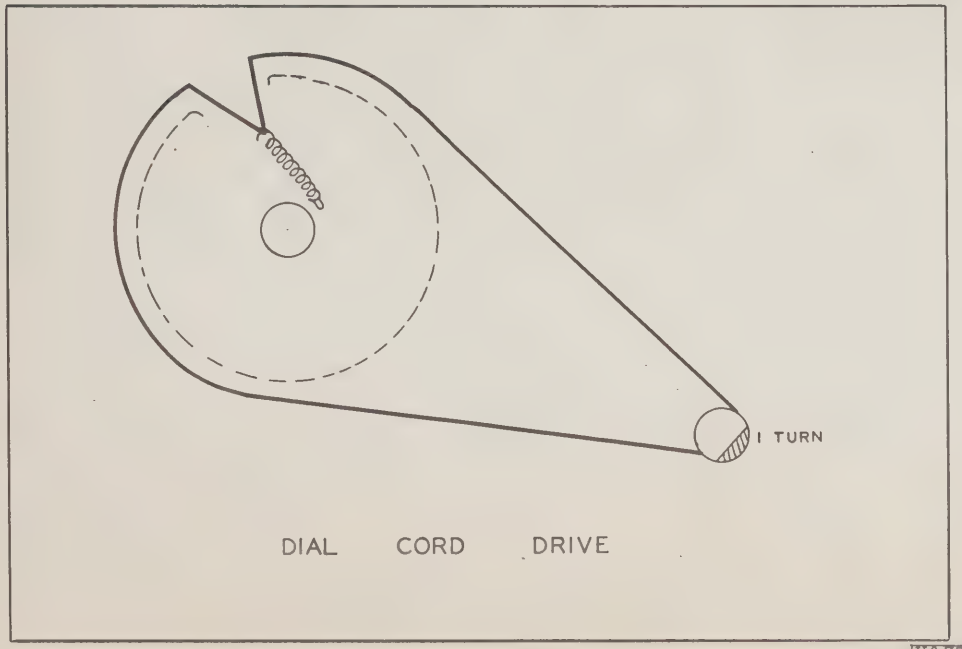
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: EMERSON PART No.	MEISSNER PART No.	
32	Loop Ant.		2.5Ω	700210		
33	Osc. Coil	.5Ω	5.5Ω	716010	14-1040	Add 50MMFD from grid to high side tuning cap.
34	Input IF	22Ω	18Ω	720000	16-6666	
35	Output IF	23Ω	22Ω	720100	16-6667	

DIAL LIGHT

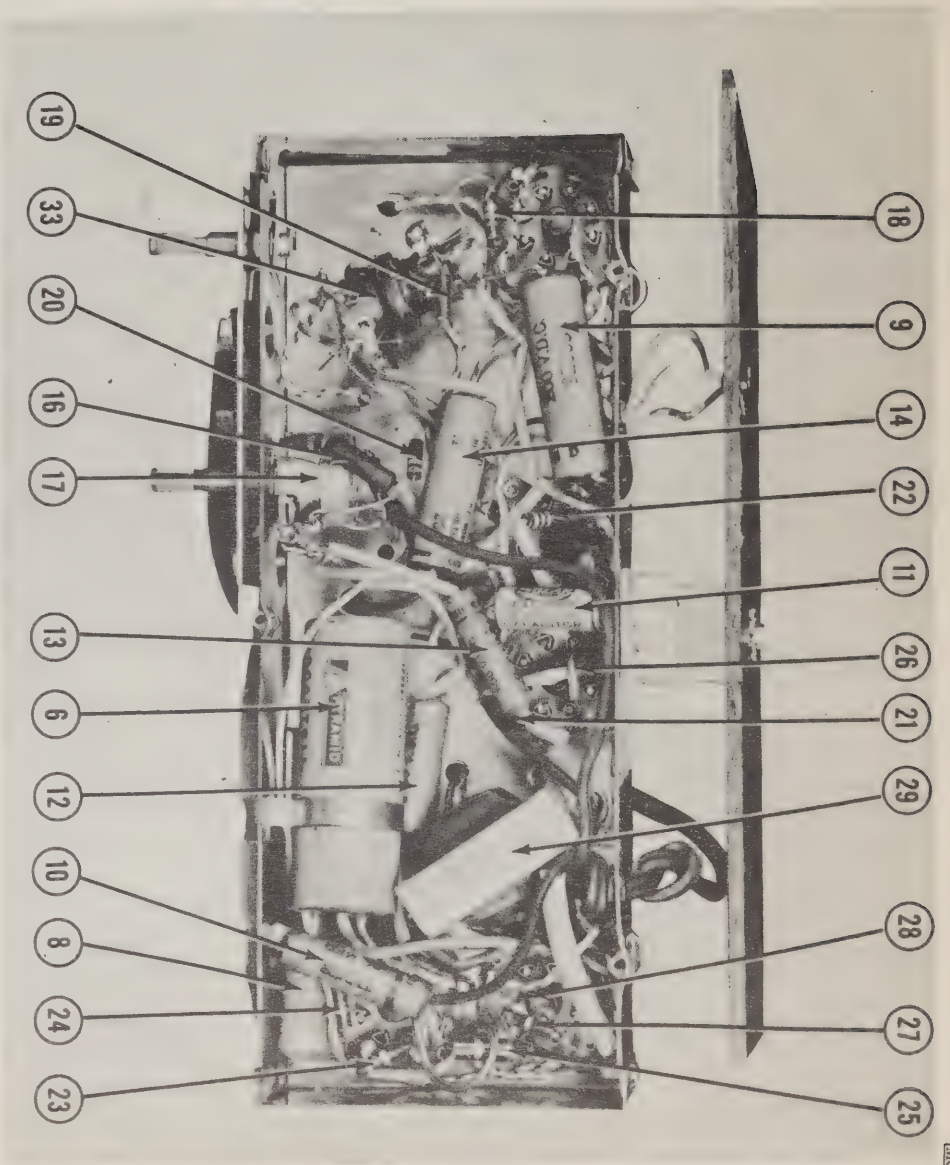
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: EMERSON PART No.		INSTALLATION NOTES
36	Bayonet	6-8	0.15	Brown	807000		Type 47

MISCELLANEOUS

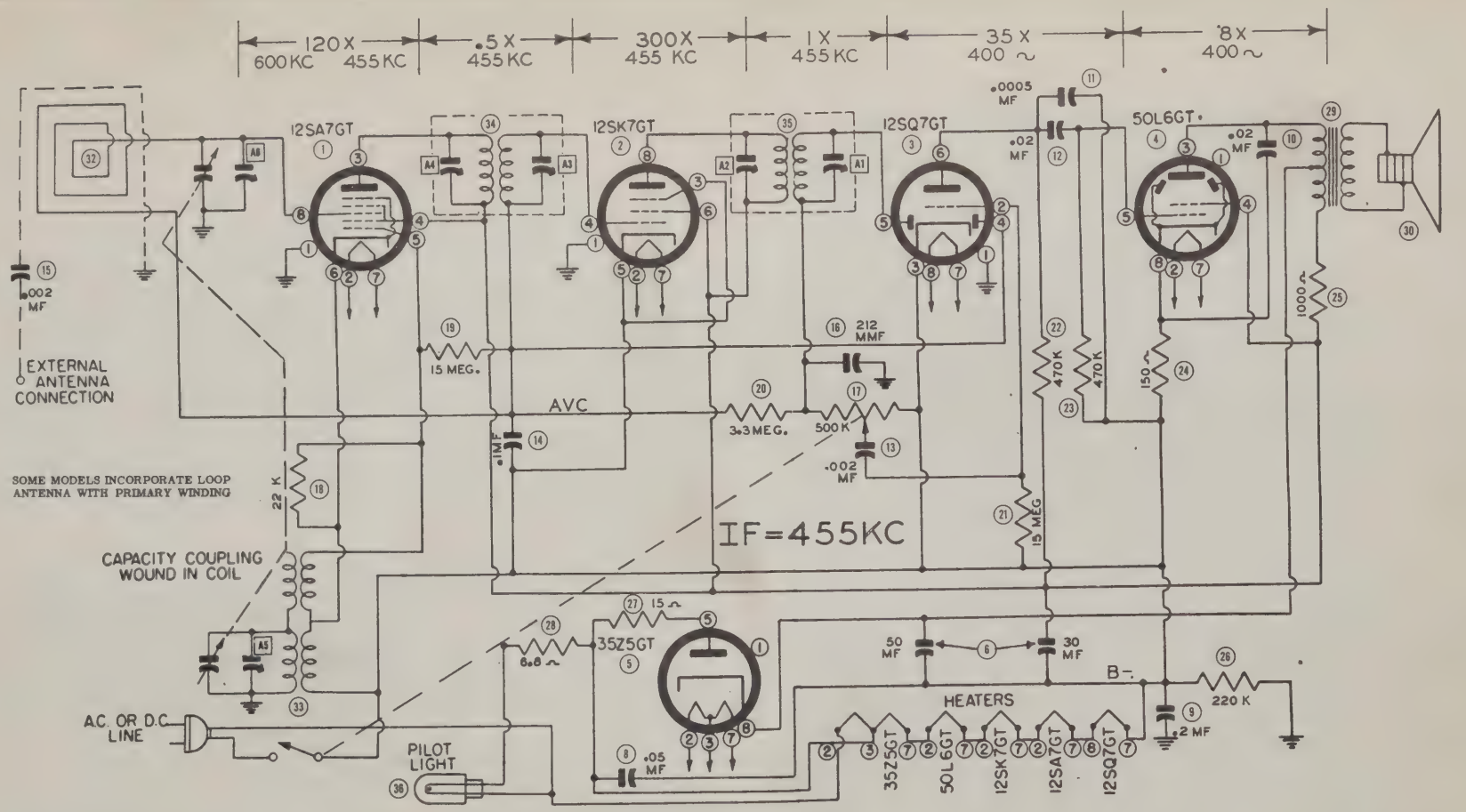
ITEM No.	PART NAME	EMERSON PART No.	NOTES
37	2 Gang Var. Cap	900160	(25-382 MMF, 32-197 MMF)



CHASSIS—BOTTOM VIEW



EMERSON MODEL 541

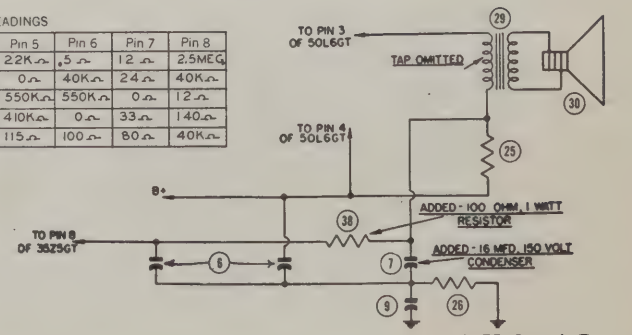


VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	0V.	26VAC	98VDC	98 VDC	-5.4VDC	0V.	13VAC	-4VDC
2	12SK7	0V.	37VAC	0V.	-4VDC	0V.	98VDC	26VAC	98VDC
3	12SQ7	0V.	-65VDC	0V.	-4VDC	-35VDC	65VDC	0V.	13VAC
4	50L6GT	0V.	85VAC	117VDC	98VDC	0V.	0V.	37VAC	58VDC
5	35Z5GTG	0V.	117VAC	113VAC	122VDC	113VAC	113VAC	85VAC	122VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	200KΩ	24Ω	40KΩ	40KΩ	22KΩ	.5Ω	12Ω	2.5MEG.
2	12SK7	200KΩ	33Ω	0Ω	2.5MEG.	0Ω	40KΩ	24Ω	40KΩ
3	12SQ7	200KΩ	15MEG.	0Ω	2.5MEG.	550KΩ	550KΩ	0Ω	12Ω
4	50L6GT	INF.	80Ω	40KΩ	40KΩ	410KΩ	0Ω	33Ω	140Ω
5	35Z5GTG	INF.	105Ω	100Ω	40KΩ	115Ω	100Ω	80Ω	40KΩ


TO PIN 3 OF 50L6GT
TAP OMITTED
TO PIN 4 OF 50L6GT
B+
TO PIN 8 OF 35Z5GT
ADDED - 100 OHM, 1 WATT RESISTOR
ADDED - 16 MFD. 150 VOLT CONDENSER

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

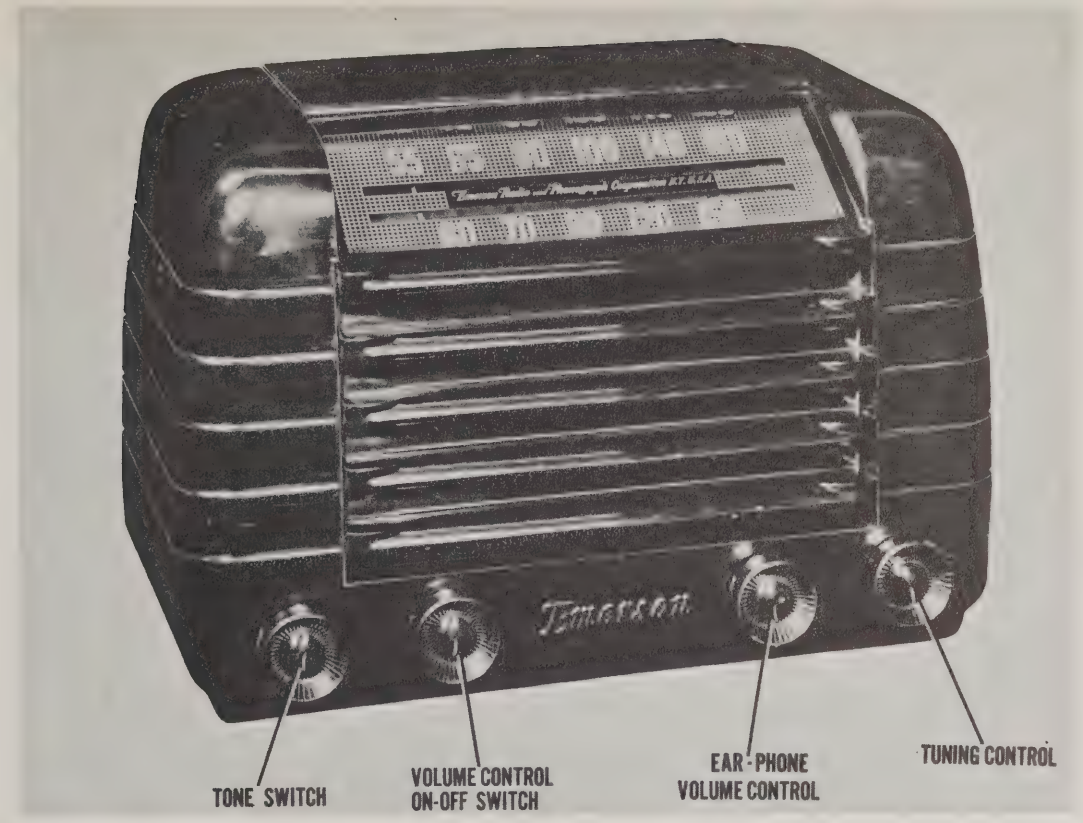
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

476-13

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

EMERSON
MODEL 1002



EMERSON
MODEL 1002

EMERSON MODEL 1002

TRADE NAME	Emerson, Model 1002
MANUFACTURER	Emerson Radio & Phonograph Corp., 111 8th Ave., New York, N.Y.
TYPE SET	AC-DC Operated Superheterodyne Rcvr.-Self Contained Loop Antenna
TUBES (SIX)	Types, 12SA7GT Converter, 6SS7 IF Amp., 12SQ7GT Det.-AVC-AF, 50L6GT Power Output, 6SS7 Ear Rcvr. Amp., 35Z5GT Rectifier.
POWER SUPPLY	105-125 Volts AC-DC
TUNING RANGE—BROADCAST	540-1620KC RATING .250 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap fully closed and set dial pointer to the 1st reference mark from left end of dial backplate. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and B-. Volume control should be at maximum. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to rear stator of tuning cap.	455KC	Tuning cap fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD to reduce hum modulation.
200MMFD	High side to ext. ant. lead. Low side to chassis.	1620KC	"	"	A5	Adjust for maximum output.
200MMFD	"	1400KC	Tune for maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

EMERSON MODEL 1002

TUBES

ITEM No.	USE	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SA7GT	12SA7GT	8AD	
2	IF Amp.	6SS7	6SS7	8N	
3	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Ear Receiver Amp	6SS7	6SS7	8N	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: EMERSON PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	50	150	925011	TA-505	PRSA150-50-50	EZ5515	2N521	M-2x50-150	Filter - Red
B	50	150							" - Green
8	10	25	925180	TA-10	PRS25-10	BR102A	TC22	M-10-25	Cath. Bypass
9	.05	400	920030	TC-15	484-05	DT4S5	TP426	S-4-05	Line Filter
10	.05	200	920060	TC-15	484-05	DT4S5	TP426	S-4-05	6SS7 Screen Bypass
11	.02	400	920020	TC-12	484-02	DT4S2	TP423	S-4-02	Earphone Coupling
12	.05	400	920030	TC-15	484-05	DT4S5	TP426	S-4-05	Earphone Coupling
13	.02	400	920020	TC-12	484-02	DT4S2	TP423	S-4-02	Output Plate Bypass
14	.02	400	920020	TC-12	484-02	DT4S2	TP423	S-4-02	Audio Coupling
15	.002	600	920010	TC-22	684-002	DT6D2	TP405	S-6-002	Tone Compensation
16	.002	600	920010	TC-22	684-002	DT6D2	TP405	S-6-002	Audio Coupling
17	.1	200	920040	TC-1	484-.1	DT4P1	TP428	S-4-1	AVC Filter
18	.2	200	920050	TC-2	484-.2	DT4P2	TP429	S-4-2	Line Isolation
19	.002	600	920010	TC-22	684-002	DT6D2	TP405	S-6-002	Ant. Isolation
20	.002	600	920010	TC-22	684-002	DT6D2	TP405	S-6-002	Audio Coupling
21	.0005	600	920240	TC-35	1468-0005	DT6T5	TP403	S-6-0005	Audio Bypass
22	110	500	910010	1FM-31	1468-0001	5W5T1	MC235	MO.5-311	IF Bypass Vol. Cont.

CONTROLS

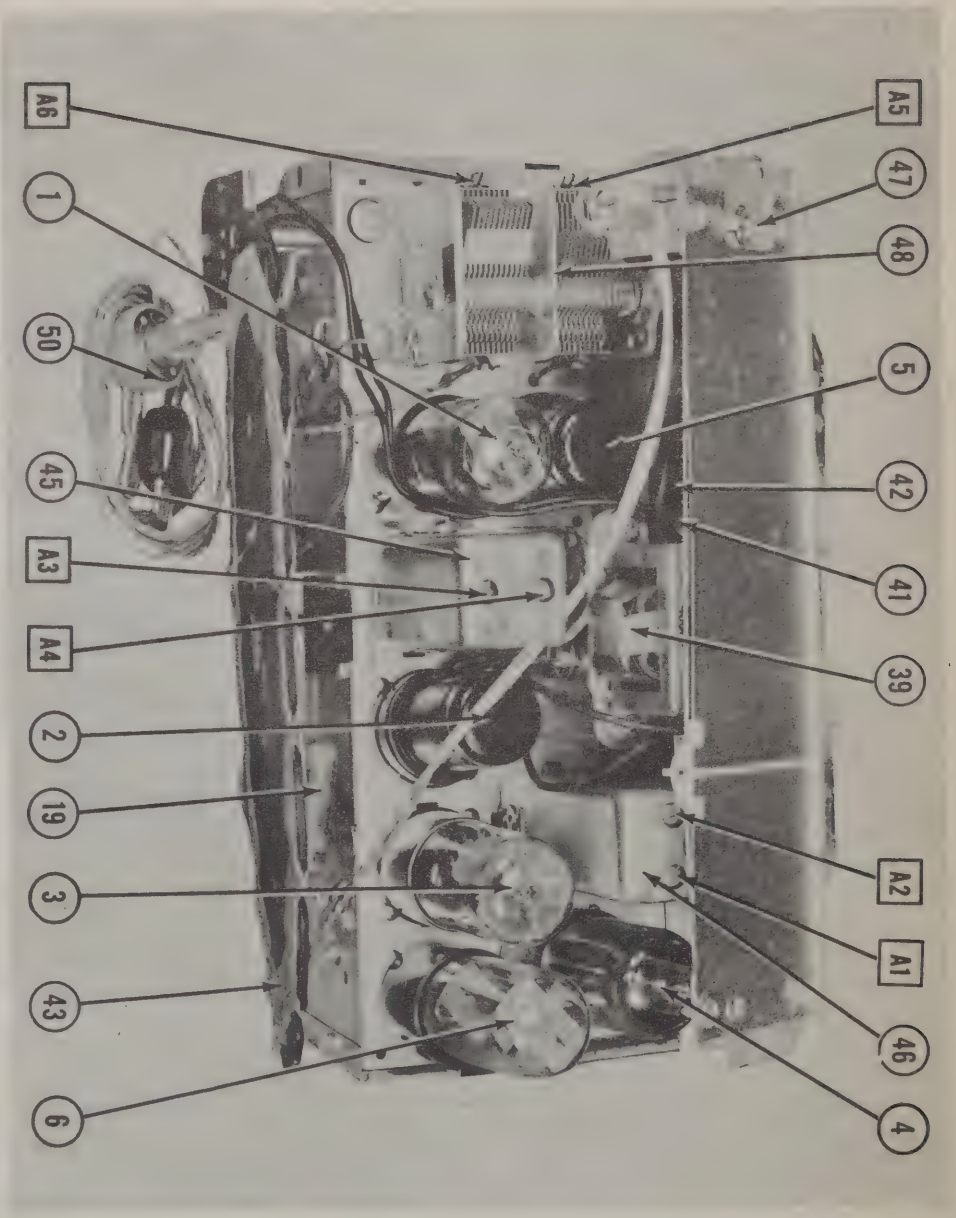
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EMERSON PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
23A	500KΩ	1	390190	UM156	D11-133	AM-58-S	Volume Control
B	Shaft		Not Req.	SS25	E	KSS-3	Attach to 23A per instructions
C	Switch		" "	M26	41	SW-A	Attach to 23A per instructions
24A	500KΩ	1	390180	MK401	D13-133	AM-60-Z	Phone Volume Control-Early Prod.
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 24A per instructions
24A	2 Meg.	1	390014	MK403	D13-139	AM-66-Z	Phone Volume Control-Later prod.
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 24A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EMERSON PART No.	IRC PART No.	IDENTIFICATION CODES
25	22KΩ	½	340810	BTS-22K	Red-Red-Or. Oscillator Grid
26	15 Meg.	½	397000	BTS-15 Meg.	Br.-Grn.-Blue AVC Network
27	220KΩ	½	351050	BTS-220K	Red-Red-Yl. Line Isolation-See Note 1
28	3.3 Meg.	½	351330	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
29	15 Meg.	½	397000	BTS-15 Meg.	Br.-Grn.-Blue AF Grid
30	470KΩ	½	351130	BTS-470K	Yl.-Vi.-Yl. AF Plate Load
31	470KΩ	½	351130	BTS-470K	Yl.-Vi.-Yl. Output Grid
32	150Ω	½	340290	BW-½-150	Br.-Grn.-Br. Output Cathode
33	1000Ω	1	370490	BTA-1000	Br.-Blk.-Red Filter
34	3.3 Meg.	½	351330	BTS-3.3 Meg.	Or.-Or.-Grn. Ear Receiver Amplifier Grid
35	470Ω	½	340410	BTS-470	Yl.-Vi.-Br. Ear Receiver Amplifier Cathode
36	100KΩ	½	340970	BTS-100K	Br.-Blk.-Yl. Ear Receiver Amplifier Screen Dropping
37	15Ω	½	340050	BW-½-15	Br.-Grn.-Blk. Rectifier Ballast
38	10Ω	½	340010	BW-½-10	Br.-Blk.-Blk. Series Pilot Light

Note 1-Later production used 100KΩ in this application

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		EMERSON PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
39	9500Ω	52Ω	900Ω	4.3Ω	734001		T20A04*		*Reverse primary and secondary connections to obtain correct impedance match.
40	2400Ω	4.6Ω	230Ω	.8Ω	734080	A-3876	T22845		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			EMERSON PART No.	JENSEN PART No.		
41	FIELD PM	VC IMP. 4.6Ω	180008			
42	CONE DIA. 4"x6"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

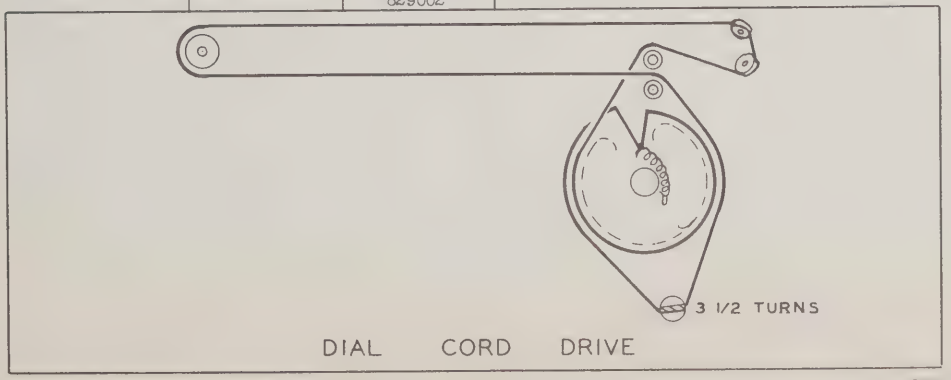
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	EMERSON PART No.	MEISSNER PART No.	
43	Loop Ant.	.2Ω	2.8Ω	700000		
44	Osc. Coil	1Ω	6.5Ω	716070	14-1040	
45	Input IF	35Ω	23Ω	720380	16-6666	
46	Output IF	28Ω		720390	16-6670	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					EMERSON PART No.		
47	Bayonet	6-8	0.15	Brown			Type 47

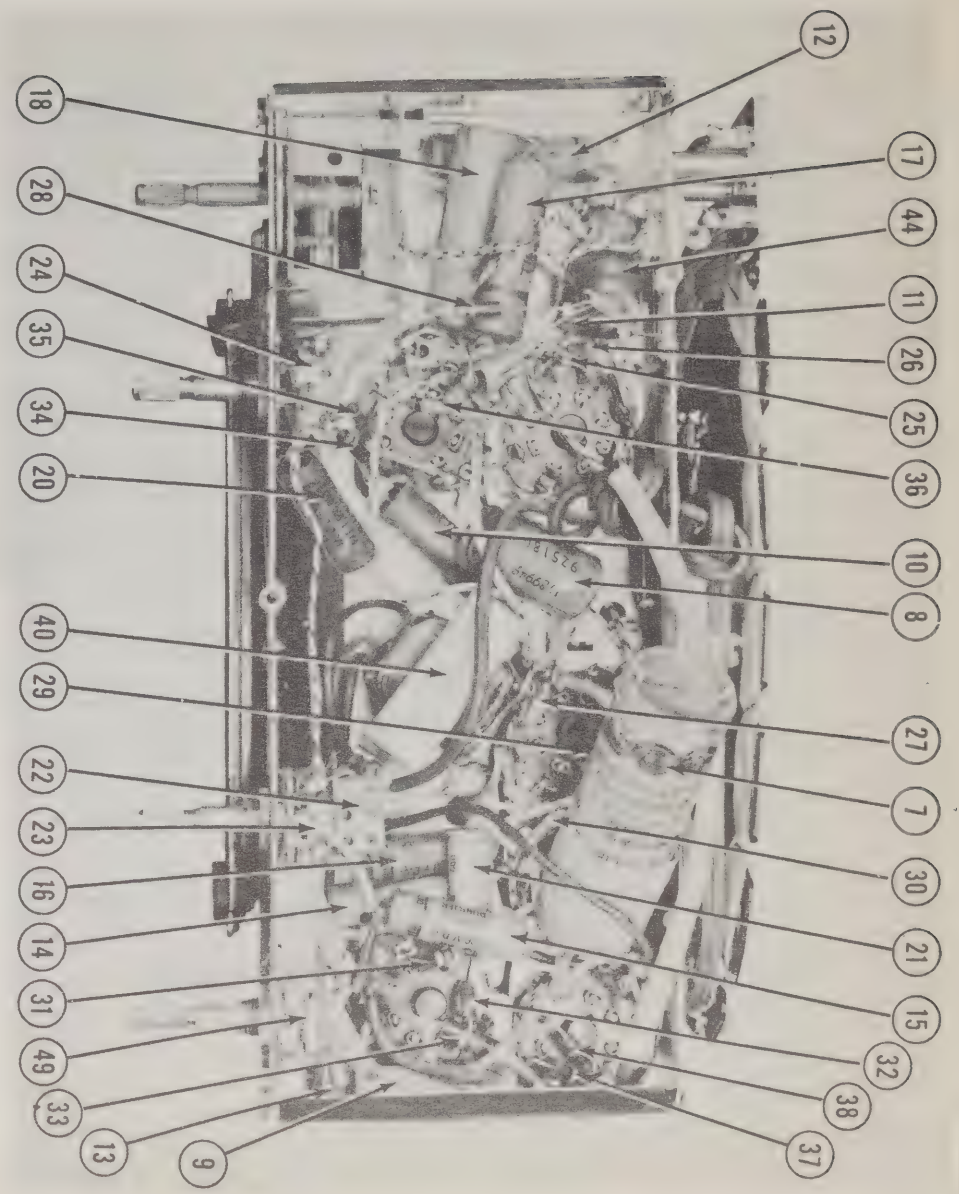
MISCELLANEOUS

ITEM No.	PART NAME	EMERSON PART No.	NOTES
48	2 Gang Var. Cap	900070	(21-385MMF, 22-185MMF)
49	Tone Switch	510120	
50	Ear Receiver	829001 or 829002	Cord Included

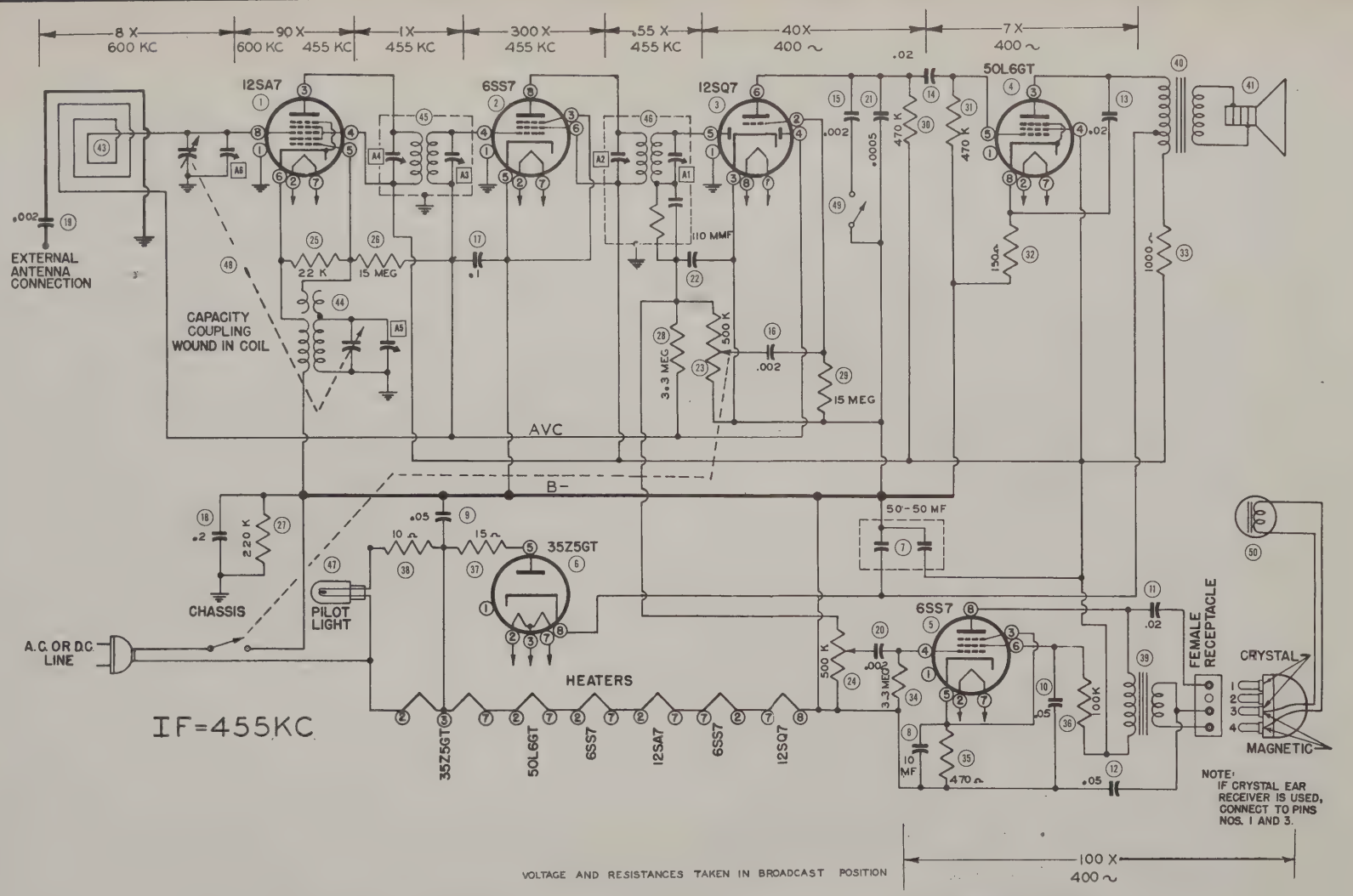


DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



EMERSON MODEL 1002



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	0V.	29V.AC	95V.DC	95V.DC	-4V.DC	0V.	18V.AC	-5V.DC
2	6SS7	0V.	35V.AC	0V.	-5V.DC	0V.	95V.DC	29V.AC	95V.DC
3	12SQ7	0V.	-8V.DC	0V.	-5V.DC	-4V.DC	5.5V.DC	12V.AC	0V.
4	50L6	0V.	85V.AC	120V.DC	95V.DC	0V.	0V.	35V.AC	5V.DC
5	6SS7	0V.	12V.AC	1.5V.DC	.5V.DC	1.5V.DC	45V.DC	18V.AC	95V.DC
6	35Z5	0V.	117V.AC	113V.AC	125V.DC	113V.AC	117V.AC	85V.AC	125V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	220KΩ	26Ω	30KΩ	30KΩ	20KΩ	.5Ω	18Ω	2.5MEG
2	6SS7	220KΩ	32Ω	0Ω	2.5MEG	0Ω	30KΩ	28Ω	30KΩ
3	12SQ7	220KΩ	15MEG.	0Ω	2.5MEG	320KΩ	500KΩ	11Ω	0Ω
4	50L6	INF.	80Ω	30KΩ	30KΩ	400KΩ	0Ω	32Ω	135Ω
5	6SS7	220KΩ	11Ω	400Ω	2.5MEG	400KΩ	130KΩ	18Ω	30KΩ
6	35Z5	INF.	102Ω	100Ω	30KΩ	100Ω	102Ω	80Ω	30KΩ

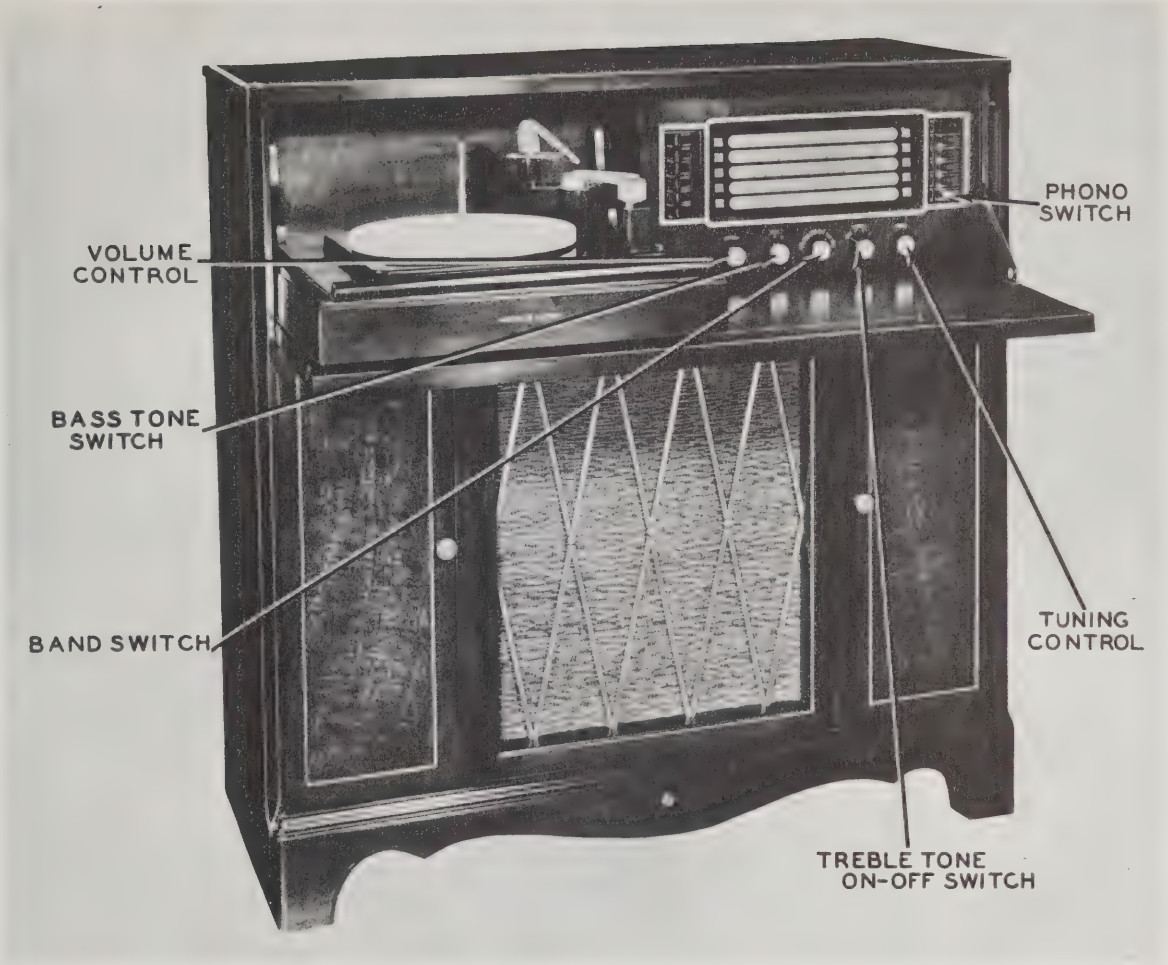
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS 476-14

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

GENERAL ELECTRIC
MODEL 417



GENERAL ELECTRIC
MODEL 417

GENERAL ELECTRIC MODEL 417

TRADE NAME	GE, Model 417
MANUFACTURER	General Electric Co., Electronics Dept., Bridgeport, Conn.
TYPE SET	AC Operated Automatic Phono-Radio Combination FM-AM Superheterodyne Receiver-Self Contained Loop Antenna.
TUBES: (TEN)	Types: 6AK5 RF Amp., 6AK5 Mixer, 6AK5 Oscillator, 6SG7 1st IF Amp., 6SV7 2nd IF Amp., 6SH7 Limiter (FM), Detector (AM), 6AQ7GT Discriminator-1st AF, 6V6GT Power Output, 6SC7 Phono Pre-Amp., 5Y3GT Rectifier.
POWER SUPPLY	100-125 Volts AC
RATING	.700 Amp. @ 117 Volts AC
FREQUENCY RANGES:	BROADCAST 540-1600KC SHORT WAVE - Band 1 (9.4-9.9MC), Band 2 (11.6-12.1MC) FREQ. MOD. - Band 1 (45-50MC), Band 2 (88-108MC)

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: GENERAL ELECTRIC PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	6AK5	6AK5	7PM	
2	Mixer	6AK5	6AK5	7PM	
3	Oscillator	6AK5	6AK5	7PM	
4	1st IF Amp.	6SG7	6SG7	8BK	
5	2nd IF Amp.	6SV7	6SV7	7AZ	
6	FM-Limiter, AM-Detector	6SH7	6SH7	8BK	
7	Disc.-1st AF	6AQ7GT	6AQ7GT	8CK	
8	Power Output	6V6GT	6V6GT	7AC	
9	Phono Pre-Amp.	6SC7	6SC7	8S	
10	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: GENERAL ELECTRIC PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
11A	30	400	RCE-029	EL-424	AF862J4A	UP9DJ53	FP429	DY-406	◓ Filter
B	30	400							■ "
C	15	400							▲ "
D	20	25							
12A	15	350	RCE-030	EL-254	AF44J	UP6BJ38	FP225	DY-2x15-350	■ Filter-Pre. Amp.
B	15	350							▲ " " " "
13	.01	600	UCC-040	TC-11	684-01	DT6S1	TP410	S-6-01	Filament Bypass
14	.01	600	UCC-040	TC-11	684-01	DT6S1	TP410	S-6-01	Output Cath. Bypass
15	.002	1000	RCC-056	TR-22	1084-002	MD16D2	TP456	TM-10-002	Feedback
16	.02	600	RCC-041	TC-12	684-02	DT6S2	TP412	S-6-02	Audio Coupling
17	.005	600	UCC-039	TC-25	684-005	DT6D5	TP408	S-6-005	" "
18	.03	600	UCC-042	TC-13	684-03	DT6S3	TP413	S-6-03	Tone Compensation
19	.007	600	RCC-001	TC-26	684-006	DT6D6	TP445	S-6-006	"
20	.001	600		TC-21	684-001	DT6D1	TP404	S-6-001	" "
21	.001	600		TC-21	684-001	DT6D1	TP404	S-6-001	" "
22	.01	600	UCC-040	TC-11	684-01	DT6S1	TP410	S-6-01	6SH7 Plate Decoup.
23	.01	600	UCC-040	TC-11	684-01	DT6S1	TP410	S-6-01	6SH7 Screen Bypass
24	.01	600	UCC-040	TC-11	684-01	DT6S1	TP410	S-6-01	RF Bypass Pwr. Supp. FM
25	.02	600	RCC-041	TC-12	684-02	DT6S2	TP412	S-6-02	2nd IF Plate Decoup.
26	.02	600	UCC-041	TC-12	684-02	DT6S2	TP412	S-6-02	2nd IF Screen Bypass
27	.05	600	UCC-045	TC-15	684-05	DT6S5	TP415	S-6-05	2nd IF Cath. Bypass
28	.01	600	UCC-040	TC-11	684-01	DT6S1	TP410	S-6-01	1st IF Plate Decoup.
29	.02	600	RCC-041	TC-12	684-02	DT6S2	TP412	S-6-02	1st IF Screen Bypass
30	.05	600	UCC-045	TC-15	684-05	DT6S5	TP415	S-6-05	AVC Filter
31	.02	600	UCC-041	TC-12	684-02	DT6S2	TP412	S-6-02	Mixer Plate Decoup.
32	.02	600	UCC-041	TC-12	684-02	DT6S2	TP412	S-6-02	RF Screen Bypass
33	.05	600	UCC-045	TC-15	684-05	DT6S5	TP415	S-6-05	AVC Filter
34	.01	600	UCC-040	TC-11	684-01	DT6S1	TP410	S-6-01	Mixer Screen Bypass
35	.02	600	RCC-041	TC-12	684-02	DT6S2	TP412	S-6-02	RF Plate Decoup.
36	.02	600	UCC-041	TC-12	684-02	DT6S2	TP412	S-6-02	Audio Coupling
37	.05	600	UCC-045	TC-15	684-05	DT6S5	TP415	S-6-05	Phono Coupling
38	.05	600	UCC-045	TC-15	684-05	DT6S5	TP415	S-6-05	Audio Coupling
39	.01	600	UCC-040	TC-15	684-01	DT6S1	TP410	S-6-01	Tone Compensation
40	100	500	UCU-028	1FM-31	1468-0001	5W5T1	MC235	MO.5-31	Audio Plate Bypass
41	100		UCW-1028	1FM-31	1468-0001	5W5T1	MC235	MO.5-31	Disc. Filter Cer.
42	390	500	UCU-1042						Deemphasis Network
43	680	500	UCU-048						Tone Compensation
44	22	500	UCU-1512	MS-42		5W5Q2		MO.5-422	Tone Compensation
45	47	500	UCU-020	1FM-45	1468-00005	5W5Q5	MC225	MO.5-447	Det.- Grid Filter
46	47	500	UCU-020	1FM-45	1468-00005	5W5Q5	MC225	MO.5-447	" " "
47	220	500	UCU-536	1FM-32	1468-0002	5W5T2	MC237	MO.5-322	IF Coupling
48	100	500	UCU-528	1FM-31	1468-0001	5W5T1	MC235	MO.5-31	RF Screen Bypass
49	100		RCW-1028	1FM-31	1468-0001	5W5T1	MC235	MO.5-31	RF Coupling Cer.
50	150	500	UCU-1532	1FM-315	1468-00015	5W5T15	MC236	MO.5-315	Fixed Padder
51	100		RCW-1028						" " Cer.
52	10		RCW-1004						Ext. Ant. Coupling SW
53	6.8		UCN-506						" " " BC
54	3.3		RCW-015						RF Coupling Cer.
55	15		RCW-014						" " "
56	10		RCW-1004						" " "
57	100		RCW-1028						" " "
58	27		UCW-1014						Mixer Plate Bypass Cer.
59	47	500	UCU-520	1FM-45	1468-00005	5W5Q5	MC225	MO.5-447	RF Coupling
60	10	500	UCU-1054	MS-41	1468-00001	5W5Q1	MC215	MO.5-41	" "

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

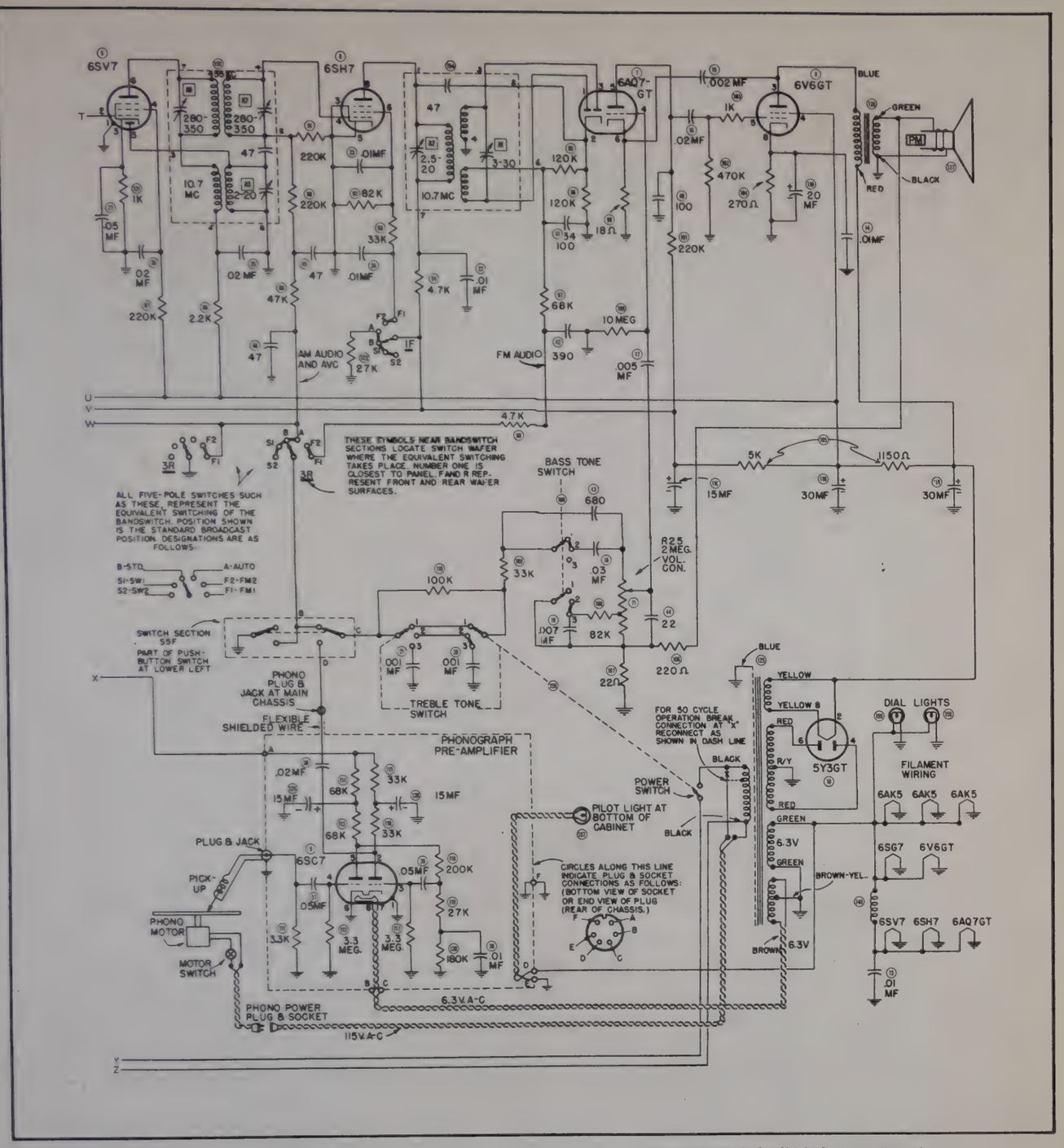
ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: GENERAL ELECTRIC PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
61	10	500	UCU-1054	MS-41	1468-00001	5W5Q1	MC215	MO.5-41	" "
62	22	500	UCU-1512	MS-42		5W5Q2		MO.5-422	" "
63	10		RCW-013	MS-41	1468-00001	5W5Q1	MC215	MO.5-41	Osc. Coupling Cer.
64	470	500	UCU-1544	1FM-35	1468-0005	5W5T1	MC240	MO.5-347	Osc. Plate Bypass
65	15		RCW-014						Osc. Cath. Bypass Cer.
66	47		RCW-001						Osc. Grid Capacitor Cer
67	47		UCW-1020						Fixed Trimmer Cer.
68	56								Cath. Bypass Cer.
69	680	500	UCG-2048						Fixed Trimmer PB
70	100	500	UCU-528	1FM-31	1468-0001	5W5T1	MC235	MO.5-31	FM Ant. Coupling
162	5.6		RCW-060						RF Coupling PB

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: GENERAL ELECTRIC PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
71A	2 Meg.	1	RRC-014	TM259	D18-139X	AT-116	Volume Control
B	Shaft		Not Req.	SS25	E	KSS-3	Attach to 71A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: GENERAL ELECTRIC PART No.	IRC PART No.	IDENTIFICATION CODES
72	1 Meg.	½	URD-121	BTS-1 Meg.	Br.-Blk.-Grn. Antenna Loading
73	1.5 Meg.	½	URD-125	BTS-1.5 Meg.	Br.-Grn.-Grn. RF Grid
74	1.5 Meg.	½	URD-125	BTS-1.5 Meg.	Br.-Grn.-Grn. AVC Network
75	47Ω	½	URD-017	BW-½-47	Yl.-Vi.-Blk. Parasitic Suppressor
76	56KΩ	½	URD-091	BTS-56K	Grn.-Blue-Or. RF Screen Dropping
77	1.5 Meg.	½	URD-125	BTS-1.5 Meg.	Br.-Grn.-Grn. Converter Grid
78	3.3 Meg.	½	URD-133	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
79	100KΩ	½	URD-097	BTS-100K	Br.-Blk.-Yl. Mixer Screen Dropping
80	18KΩ	½	URD-1079	BTS-18K	Br.-Gray-Or. Oscillator Grid
81	15KΩ	½	URD-077	BTS-15K	Br.-Gm.-Or. Mixer Plate Decoupling
82	180KΩ	½	URD-103	BTS-180K	Br.-Gray-Yl. 1st IF Grid
83	2.2 Meg.	½	URD-129	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
84	2.2 Meg.	½	URD-129	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
85	33KΩ	1	URE-085	BTA-33K	Or.-Or.-Or. 1st IF Screen Dropping
86	2200Ω	½	URD-057	BTS-2200	Red-Red-Red 1st IF Plate Decoupling
87	220KΩ	½	URD-105	BTS-220K	Red-Red-Yl. 2nd IF Screen Dropping
88	2200Ω	½	URD-057	BTS-2200	Red-Red-Red 2nd IF Plate Decoupling
89	47KΩ	½	URD-089	BTS-47K	Yl.-Vi.-Or. RF Filter
90	220KΩ	½	URD-105	BTS-220K	Red-Red-Yl. RF Filter
91	220KΩ	½	URD-105	BTS-220K	Red-Red-Yl. Limiter Grid
92	82KΩ	½	URD-095	BTS-82K	Gray-Red-Or. Limiter Screen Bleeder
93	33KΩ	½	URD-085	BTS-33K	Or.-Or.-Or. Limiter Screen Dropping
94	4700Ω	½	URD-065	BTS-4700	Yl.-Vi.-Red Limiter Plate Decoupling
95	120KΩ	½	URD-099	BTS-120K	Br.-Red-Yl. Disc. Diode Load
96	120KΩ	½	URD-099	BTS-120K	Br.-Red-Yl. Disc. Diode Load
97	68KΩ	½	URD-093	BTS-68K	Blue-Gray-Or. Deemphasis Network
98	4700Ω	½	URD-065	BTS-4700	Yl.-Vi.-Red Tone Compensation
99	18Ω	½	URD-007	BW-½-18	Br.-Gray-Blk. AF Cathode
100	10 Meg.	½	URD-145	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
101	220KΩ	½	URD-105	BTS-220K	Red-Red-Yl. AF Plate Load
102	470KΩ	½	URD-113	BTS-470K	Yl.-Vi.-Yl. Output Grid
103	1000Ω	½	URD-049	BTS-1000	Br.-Blk.-Red Parasitic Suppressor
104	270Ω	1	URE-035	BW-1-270	Red-Vi.-Br. Output Cathode
105A	1150Ω	½	RRW-010		Filter
B	5000Ω	½			"
106	220Ω	½	URD-033	BW-½-220	Red-Red-Br. Feedback
107	22Ω	½	URD-009	BW-½-22	Red-Red-Blk. "
108	82KΩ	½	URD-095	BTS-82K	Gray-Red-Or. Tone Compensation
109	33KΩ	½	URD-085	BTS-33K	Or.-Or.-Or. " "
110	100KΩ	½	URD-097	BTS-100K	Br.-Blk.-Yl. " "
111	3300Ω	½	URD-061	BTS-3300	Or.-Or.-Red Phono Shunt
112	3.3 Meg.	½	URD-133	BTS-3.3 Meg.	Or.-Or.-Grn. Phono Amplifier Grid
113	68KΩ	½	URD-093	BTS-68K	Blue-Gray-Or. Phono Amplifier Plate Load



VOLTAGE AND RESISTANCE TAKEN IN BROADCAST POSITION

RESISTANCE READINGS

ITEM	TUBE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8
1	6AK5	22 MEG.	0Ω	0Ω	.1Ω	33KΩ	80KΩ	0Ω	
2	6AK5	12 MEG.	0Ω	0Ω	.1Ω	38KΩ	128KΩ	0Ω	
3	6AK5	18KΩ	.2Ω	0Ω	.1Ω	20KΩ	20KΩ	.2Ω	
4	6SG7	0Ω	0Ω	0Ω	2.8 MEG.	0Ω	60KΩ	.1Ω	25KΩ
5	6SV7	0Ω	12Ω	1KΩ	230KΩ	0Ω	25KΩ	.1Ω	0Ω
6	6SH7	0Ω	0Ω	0Ω	200KΩ	0Ω	70KΩ	.1Ω	25KΩ
7	6AQ7GT	230KΩ	115KΩ	.5Ω	10MEG.	200KΩ	17Ω	0Ω	.1Ω
8	6V6GT	0Ω	0Ω	25KΩ	25KΩ	410KΩ	410KΩ	.1Ω	240Ω
9	6SC7	0Ω	90KΩ	3.3MEG.	3.5MEG.	105KΩ	0Ω	.5Ω	.5Ω
10	5Y3GT	INF.	25KΩ	INF.	95Ω	INF.	100Ω	INF.	25KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

The stage gain measured values listed below are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

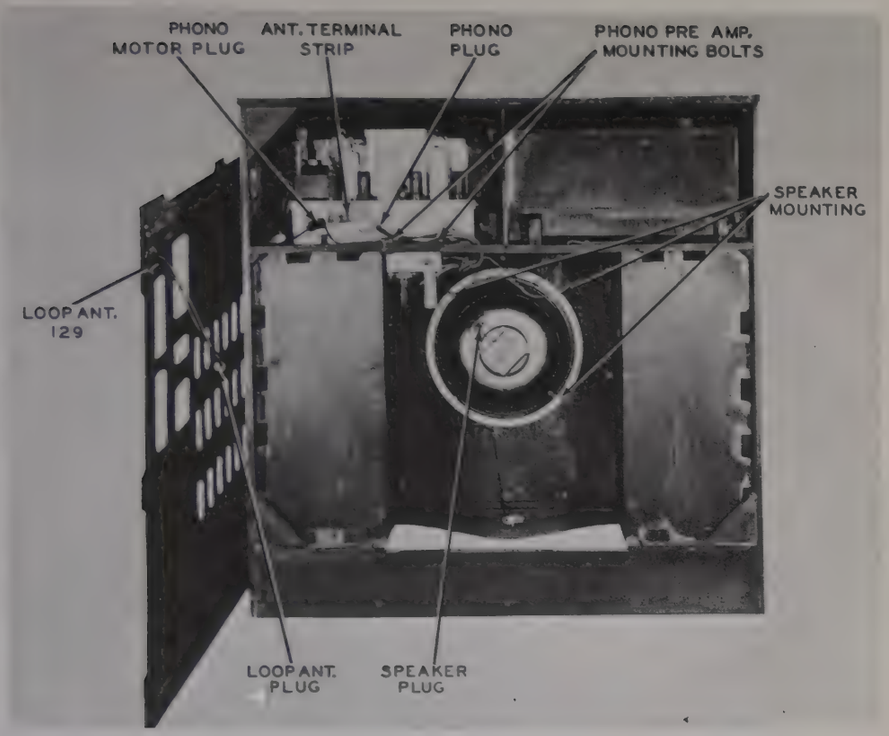
STAGE GAIN CHART

ANT. TO RF GRID	7X	(600KC)
RF GRID TO CONV. GRID	10X	(600KC)
CONV. GAIN	11X	(600KC IN) (455KC OUT)
INPUT IF	.15X	(455KC)
1st IF TUBE	140X	(455KC)
INTER. IF	.17X	(455KC)
2nd IF TUBE	90X	(455KC)
OUTPUT IF	.65X	(455KC)
AUDIO	45X	(400 ~)
OUTPUT	30X	(400 ~)
PHONO PRE-AMP.	26X	(400 ~)
PHONO AMP.	4X	(400 ~)

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

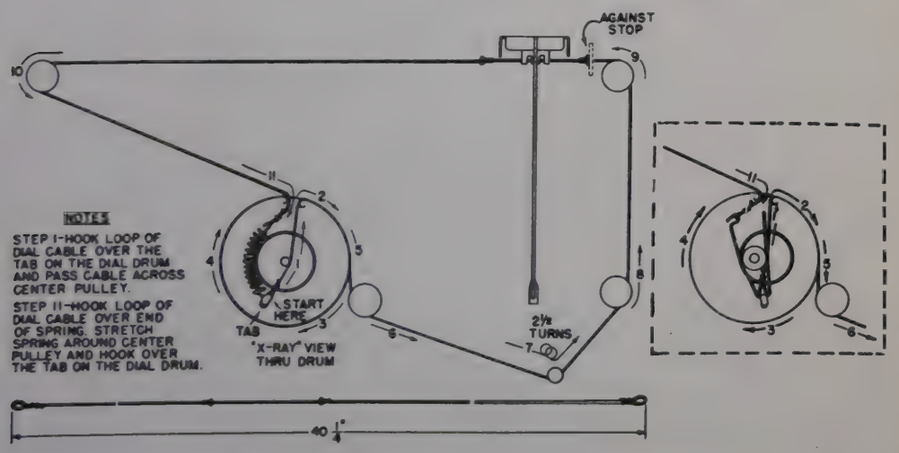
To set pointer, turn tuning control fully clockwise and set pointer 1-15/16 inches from the right edge of dial backplate. If a vacuum tube voltmeter is not available for FM alignment a 20,000Ω per volt DC meter may be used. When connecting meter to the grid of the 6SH7 connect the 200,000Ω resistor directly to the grid terminal to reduce capacity loading. When using output meter as an output indicator keep volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver and 1/4" hex wrench for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.01 MFD.	High side to Pin #4 (grid) of 6SH7 (6). Low side to chassis.	10.7MC (Unmodulated-Apply approx. 1 volt signal	FM 1	High freq. end of dial. (Platform down)	VTVM connected from junction of resistor 97 and capacitor 42 to chassis.	A1	Adjust for zero reading.
.01 MFD.	"	Detune signal generator to point of maximum meter reading.	"	"	"		Do not change signal generator setting until following step is completed.
.01 MFD.	High side to Pin 4 (grid) of 6SG7. Low side to chassis.	Do not change.	"	"	"	A2	Adjust for maximum reading.
.01 MFD.	High side to Pin 2 (grid) of 6SV7. Low side to chassis.	10.7MC (Unmodulated)	"	"	VTVM connected from Pin 4 (grid) of 6SH7 to chassis in series with 200KΩ. (See pre-alignment instructions).	A3	Remove 6AQ7 tube from its socket. Adjust A3 for maximum readings.
.01 MFD.	High side to Pin #4 of 6SG7. Low side to chassis.	"	"	"	"	A4	With 6AQ7 still removed adjust for maximum output
Direct	High side to Pin 1 (grid) of 6AK5 mixer (2). Low side to chassis near tube. Generator lead must be shielded up to within 1/16" of tube lug. Grnd. shield solidly.	"	"	"	"	A5,A6.	"
Direct	"	455KC (Modulated)	BC	"	Output meter across voice coil.	A7,A8, A9,A10, A11,A12	Replace 6AQ7. Adjust for maximum output in order given.
Direct	High side to right dipole terminal. Low side to grounded dipole terminal. (Disconnect built in antenna)	88MC (Unmodulated)	FM 2	Pointer 8-3/4" from right edge of dial backplate.	VTVM connected from Pin 4 of 6SH7 to chassis in series with 200KΩ	A13	Adjust for maximum output
Direct	"	98MC (Unmodulated)	"	Tune for maximum output.	"	A14	Rock tuning control and adjust for maximum output
Direct	"	"	"	"	"	A15	"
Direct	"	43MC (Unmodulated)	FM 1	8" from right edge of dial backplate.	"	A16	Adjust for maximum output
Direct	"	46MC (Unmod.)	"	Tune for maximum out.	"	A17	Rock tuning control and adjust for maximum output
Direct	"	"	"	"	"	A18	"
400Ω	High side to ext. ant. terminal. Low side to chassis. (Remove jumper from ant. terminal).	11.8MC (Modulated)	SW 2	6" from right edge of dial backplate.	Output meter across voice coil.	A19	Adjust for maximum output
400Ω	"	"	"	"	"	A20,A21	Rock tuning control and adjust for maximum output.
400Ω	"	9.6MC	SW 1	"	"	A22	Adjust for maximum output.
400Ω	"	"	"	"	"	A23,A24	Rock tuning control and adjust for maximum output.
200 MMF.	"	1620KC	Std. BC	Tuning control fully clockwise.	"	A25	Adjust for maximum output.
200 MMF.	"	"	"	"	"	A26,A27	" " " "
200 MMF.	"	1500KC	"	3-3/8" from right edge of dial backplate.	"	A28	" " " "
200 MMF.	"	1000KC	"	Tune for maximum output.	"	A29,A30	" " " "
200 MMF.	"	580KC	"	"	"	A31	Rock tuning control and adjust for maximum output. Repeat last five steps.



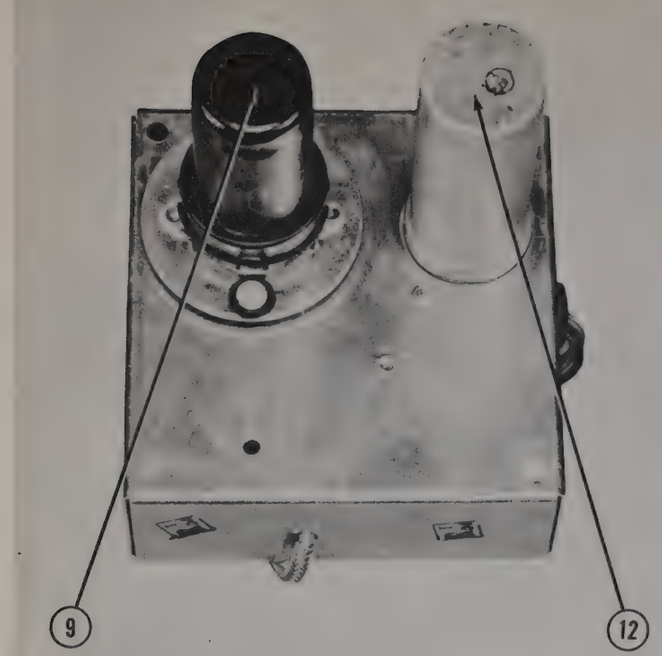
DISASSEMBLY INSTRUCTIONS

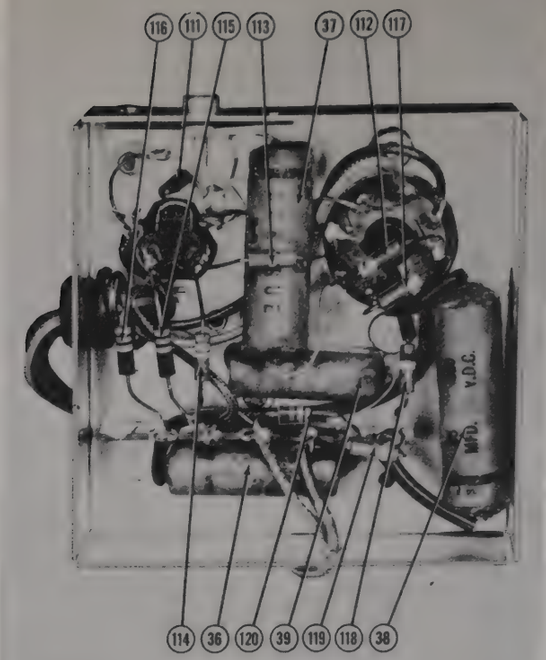
1. Remove five push-on type control knobs from front panel.
2. Remove 13 screws holding loop ant. to rear of cabinet. Remove loop ant. plug from chassis. Remove loop ant.
3. Remove phono-motor plug from receptacle.
4. Remove two plugs from phono pre-amp from chassis.
5. Remove two plug leads from speaker.
6. Remove four chassis mounting bolts.
7. Remove plug from pushbutton tuning assembly.
8. Remove chassis.
9. Remove one screw and release clips holding tuner shield. Remove shield.
10. Remove two hex nuts, lock washers, and washers holding pushbutton assembly. Remove pushbutton assembly.
11. Remove phono-pickup plug from phono pre-amp. chassis.
12. Remove two bolts holding phono pre-amp chassis. Remove chassis.
13. Remove pilot light from bottom of cabinet.
14. Remove four hex nuts holding speaker. Remove speaker.

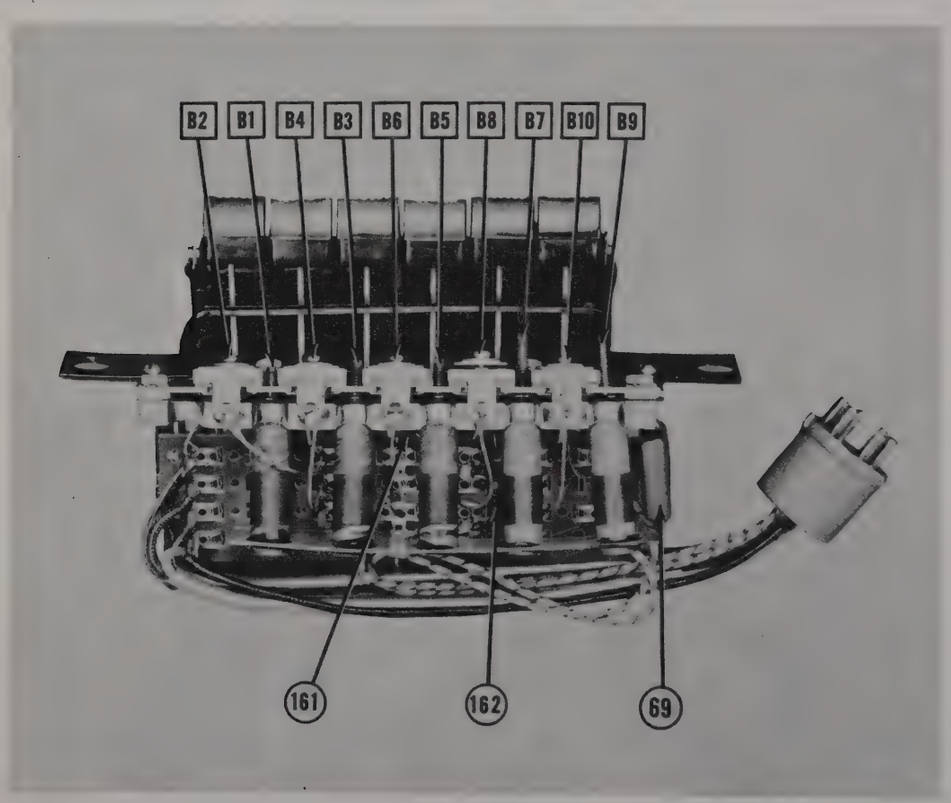

AGAINST STOP
NOTES
STEP I-HOOK LOOP OF DIAL CABLE OVER THE TAB ON THE DIAL DRUM AND PASS CABLE ACROSS CENTER PULLEY.
STEP II-HOOK LOOP OF DIAL CABLE OVER END OF SPRING. STRETCH SPRING AROUND CENTER PULLEY AND HOOK OVER THE TAB ON THE DIAL DRUM.
START HERE
TAB
"X-RAY" VIEW THRU DRUM
2½ TURNS
40 1/4"

Dial Stringing Diagram Showing Later Production Spring at Right

Elevator Windlass Stringing Procedure







PUSHBUTTON ADJUSTMENTS

Range of buttons reading from bottom to top is 540-1050KC, 540-1050KC, 540-1050KC, 850-1520KC, 1000-1600KC.

Make a list of desired stations ranging from low frequency to high frequency stations making sure that each station comes within range of each button.

1. Turn receiver on and allow it to warm up for about 15 minutes.
2. Pull buttons out and depress bottom button shaft.
3. Adjust B_1 to tune in desired station.
4. Adjust B_2 for maximum volume.
5. To set up the remaining buttons follow the procedure outlined above adjusting B3, B5, B7, B9 to tune in stations, and B4, B6, B8, B10 for maximum volume. Repeat all adjustments for optimum performance.

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	GENERAL ELECTRIC PART No.	IRC PART No.	
114	68KΩ	½	URD-093	BTS-68K	Blue-Gray-Or. Phono Amplifier Plate Decoupling
115	33KΩ	½	URD-085	BTS-33K	Or.-Or.-Or. 2nd Phono Amplifier Plate Decoupling
116	33KΩ	½	URD-085	BTS-33K	Or.-Or.-Or. 2nd Phono Amplifier Plate Load
117	3.3 Meg.	½	URD-133	BTS-3.3 Meg	Or.-Or.-Grn. 2nd Phono Amplifier Grid
118	200KΩ	½	URD-1104	BTS-220K	Red-Blk.-Yl. Audio Voltage Divider
119	27KΩ	½	URD-083	BTS-27KΩ	Red-Vi.-Or. Tone Compensation
120	180KΩ	½	URD-103	BTS-180K	Br.-Gray-Yl. Tone Compensation
121	1000Ω	½	URD-049	BTS-1000	Br.-Blk.-Red 2nd IF Cathode
122	10KΩ	1	URE-073	BTA-10K	Br.-Blk.-Or. RF Plate Decoupling
123	27KΩ	1	URE-083	BTA-27K	Red-Vi.-Or. Bleeder
124	100Ω	½	URD-025	BW-½-100	Br.-Blk.-Br. Parasitic Suppressor

TRANSFORMER (POWER)

ITEM No.	RATING					REPLACEMENT DATA		
	PRI.	SEC. 1	SEC. 2	SEC. 3	SEC. 4	GENERAL ELECTRIC PART No.	STANCOR PART No.	THORDARSON PART No.
125	117V AC @ .7A	640V CT @ .09A	5.0V AC @ 1.8A	6.3V AC @ 2.8A	6.3V CT @ .3A	RTP-020		

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		GENERAL ELECTRIC PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
126	7400Ω	8.6Ω	450Ω	1.1Ω	RTO-012	A-3849	T22S47*		*Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	VC IMP.	GENERAL ELECTRIC PART No.	JENSEN PART No.		
127	PM	8.6Ω	UOP-123D	ST-101 Mod. P12-T		
	CONE DIA.	VC DIA.				
128	11-7/8"	1-1/8"	UOX-002			

R F COILS

ITEM No.	USE.	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	GENERAL ELECTRIC PART No.	MEISSNER PART No.
129	Loop Ant.		0Ω	RAB-021	
130	BC Ant. Coil	1Ω	6Ω	RLA-009	
131	PB Ant. "	36Ω .4Ω	2.5Ω	RLA-016	
132	BC Plate Choke Dummy		1Ω	RLB-009	
133	SW Loop Shunt Coil		1Ω		
134	FM Ant. Coil		0Ω	RLB-005	
135	" " Choke Coil		1Ω	RLA-011	
136	BC RF Coil	.5Ω	6Ω	RLB-006	
137	SW RF Load Coil		0Ω	RLC-017	
138	SW RF Plate Load Coil		1Ω	RLB-008	
139	FM RF Coil		0Ω	RLB-005	
140	FM RF Plate Choke Coil		.1Ω	RLB-010	
141	BC Osc. Coil		3.5Ω	RLC-014	
142	BC Osc. Shunt Coil		3.5Ω	RLC-016	
143	SW Osc. Loading "		0Ω	RLC-015	
144	FM Osc. Coil		0Ω	RLC-013	

PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	GENERAL ELECTRIC PART No.	MEISSNER PART No.	
145	FM Osc. Cath. Ch. Coil		1Ω			
146	"		.1Ω	RLB-007		
147	Osc. Plate Choke Coil		.3Ω	RLP-006		
148	Power Line Choke		0Ω	RLI-002		
149	Fil. Ch. Coil		0Ω	RLF-003		
150	FM IF Plate Coil		.5Ω	RLP-004		
151	Input IF	5Ω ‡	.5Ω #	RTL-017		
152	Inter. IF	5Ω ‡	1.5Ω # .1Ω	RTL-018		
153	Output IF	8Ω ‡	8.5Ω .1Ω	RTL-019		
154	Disc. Trans.	1Ω	1Ω 1Ω	RTD-001		

‡Includes both pri.
#Resistance from tap.

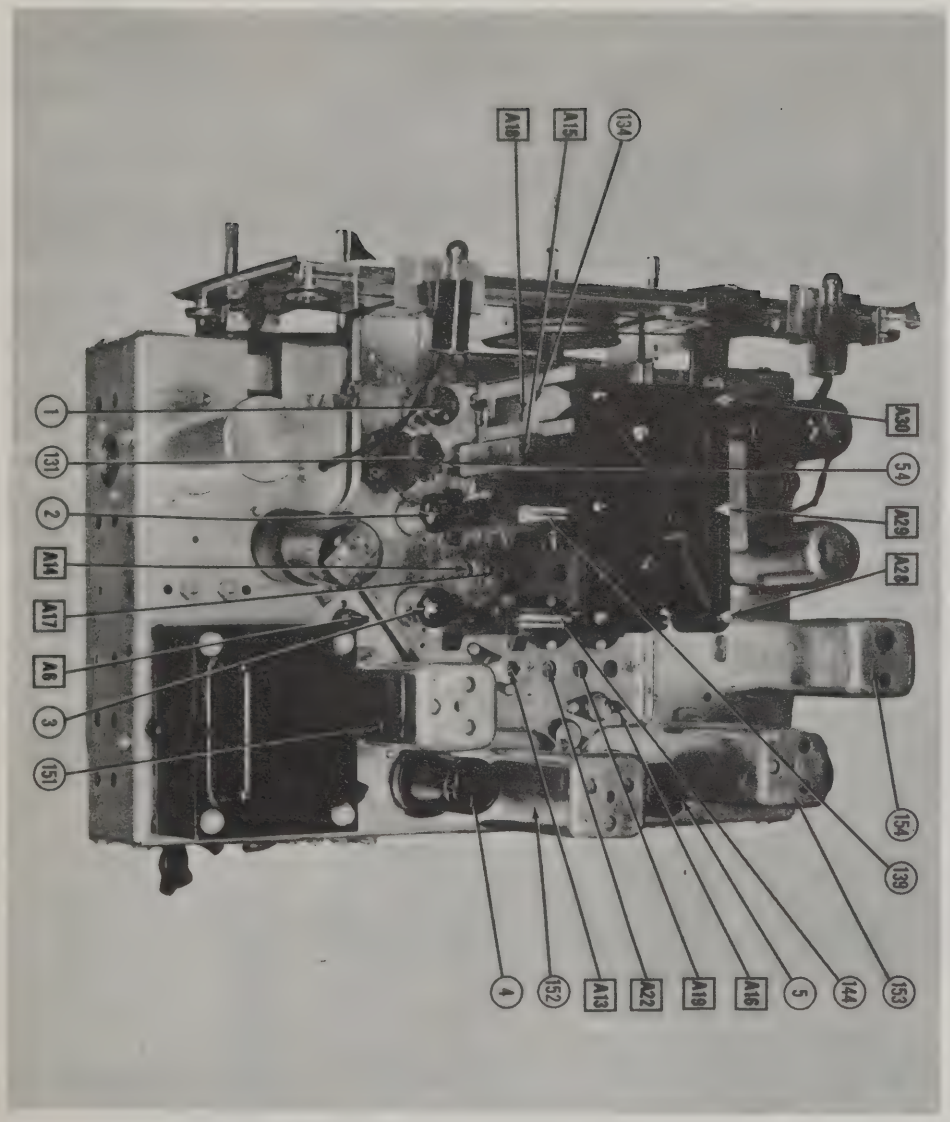
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					GENERAL ELECTRIC PART No.		
155	Bayonet	6-8	0.25	Blue			Type 44
156	"	6-8	0.25	"			"
157	"	6-8	0.15	Brown			Type 47

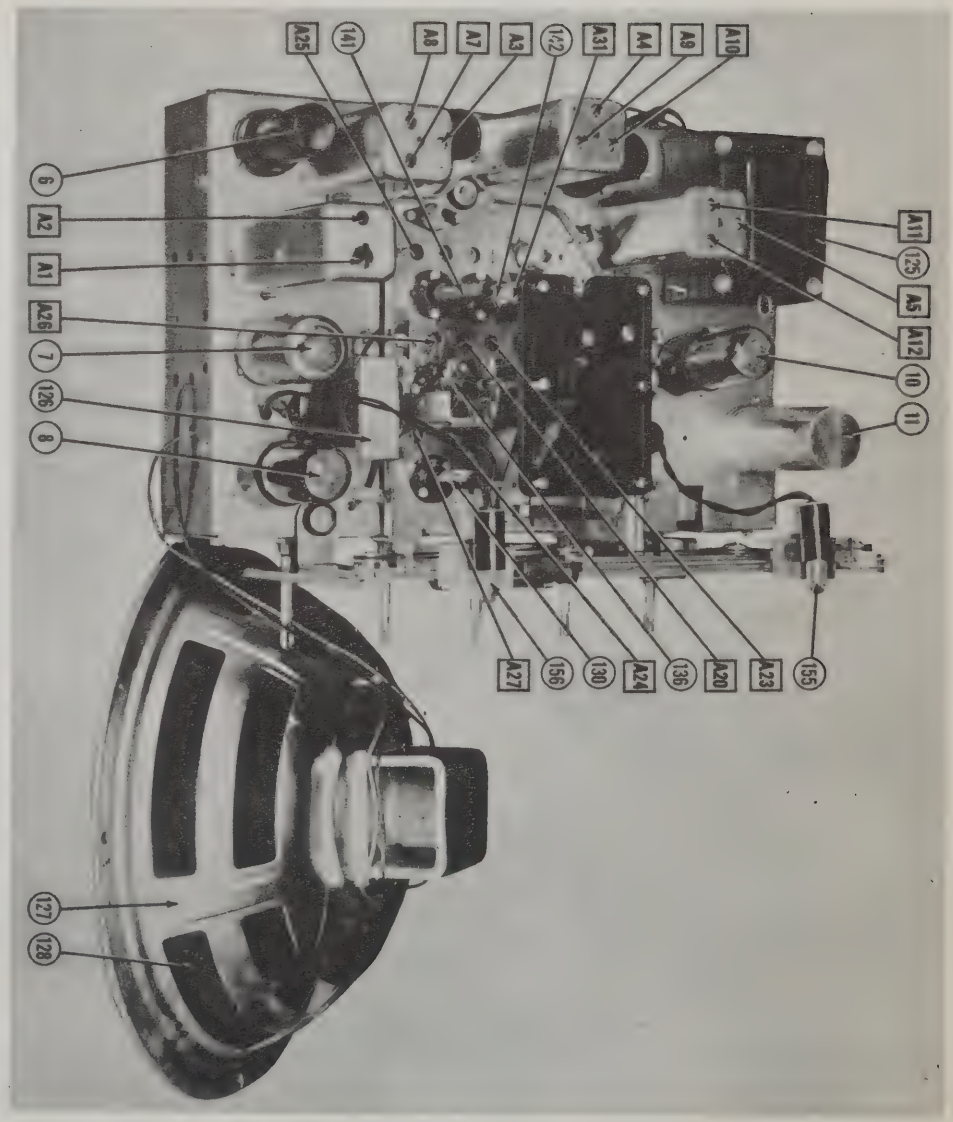
MISCELLANEOUS

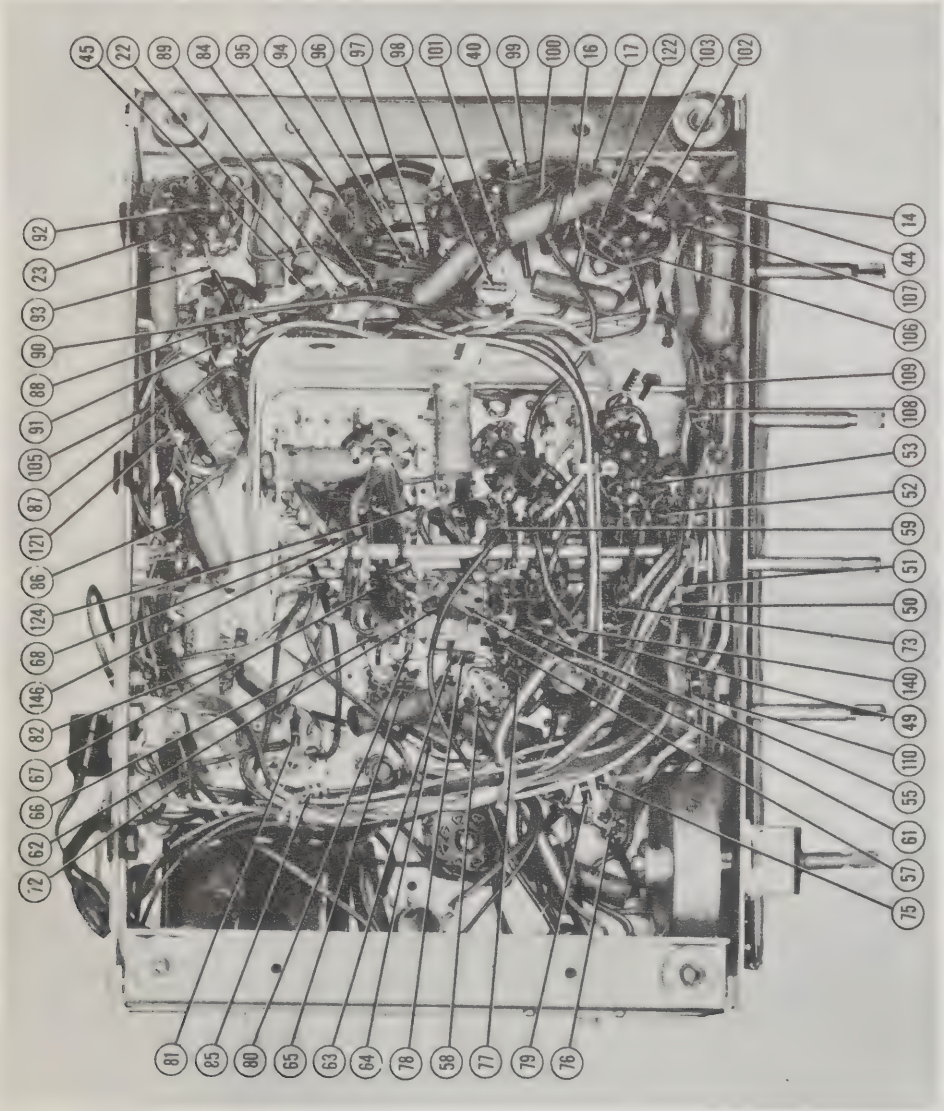
ITEM No.	PART NAME	GENERAL ELECTRIC PART No.	NOTES
158	Bandswitch	RSW-023	
159	Switch	RSX-003	Treble Tone & Power
160	"	RRC-031	Bass Tone
161	Pushbutton Assy.	RSP-002	
A13, A16	Trimmer Cap.	RCY-017	3-30 MMF (FM Osc. Adj.-Band 2) 3-30 MMF (FM Osc. Adj.-Band 1)
A19, A22, A25	Trimmer Cap.	RCX-016	280-380MMF (SW Osc. Adj.-Band 2) 475-575 MMF (SW Osc. Adj.-Band 1) 200-250MMF (BC Osc. Adj.)
A14, A17, A20, A23, A26	Trimmer Cap.	RCX-022	2-20 MMF (FM RF Adj.-Band 2) 45-80 MMF (FM RF Adj.-Band 1) 280-380 MMF (SW RF Adj.-Band 2) 475-575 MMF (SW RF Adj.-Band 1) 34-70 MMF (BC RF Adj.)
A24, A27	Trimmer Cap.	RCX-023	4-50 MMF (SW Ant. Adj.-Band 1) 34-70 MMF (BC Ant. Adj.)
A15, A18	Trimmer	RCX-028	3-30 MMF (FM Ant. Adj.-Band 2) 8-130 MMF (FM Ant. Adj.-Band 1)
A21	Trimmer Cap.	RCY-011	3-30 MMF (SW Ant. Adj.-Band 2)
B2, B4, B6, B8, B10	Pushbutton Trimmer Strip	RCX-011	45-380 MMF 45-380 MMF 45-380 MMF 9-180 MMF 5-80 MMF
B1, B3, B5, B7, B9	Pushbutton Coil	RAX-007	
	Dial Pointer	RDP-022	
	Dial Scale	RDS-018	

CHASSIS—TOP VIEW

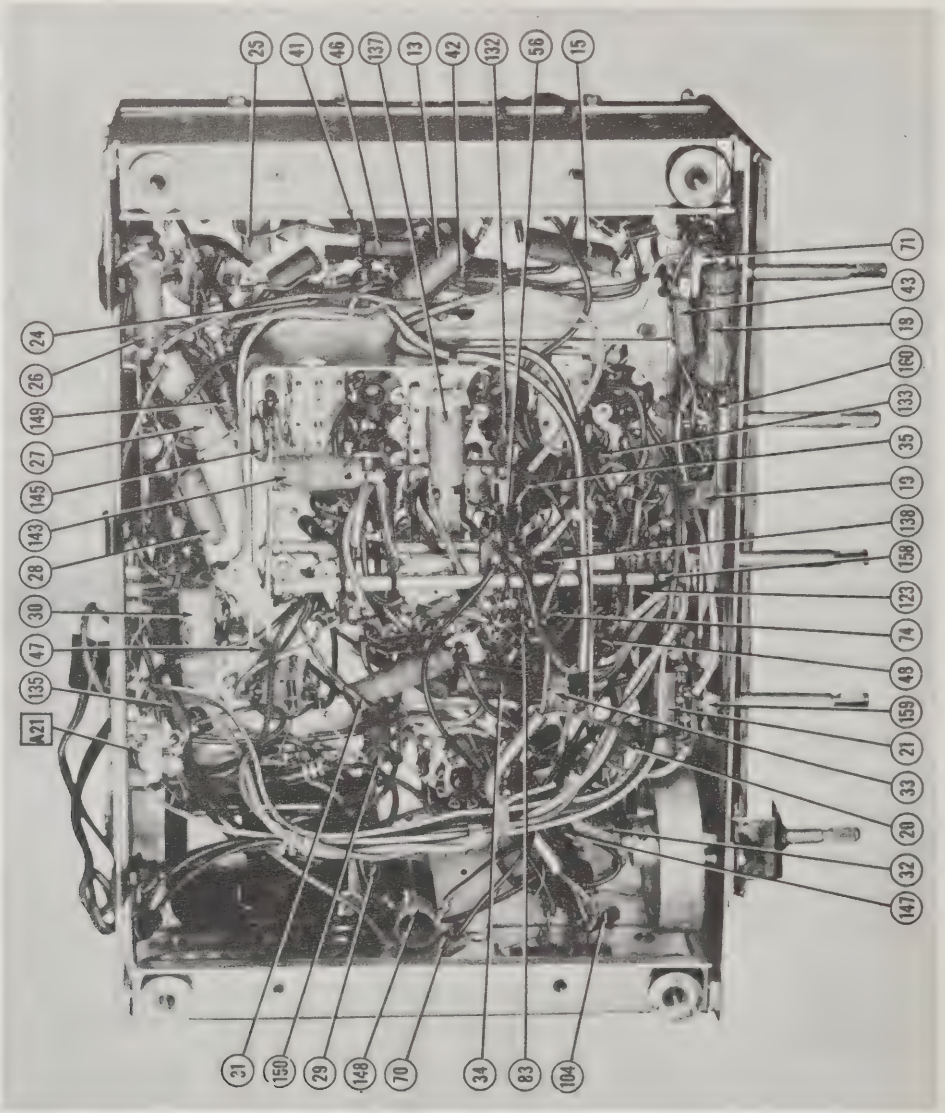


CHASSIS—TOP VIEW

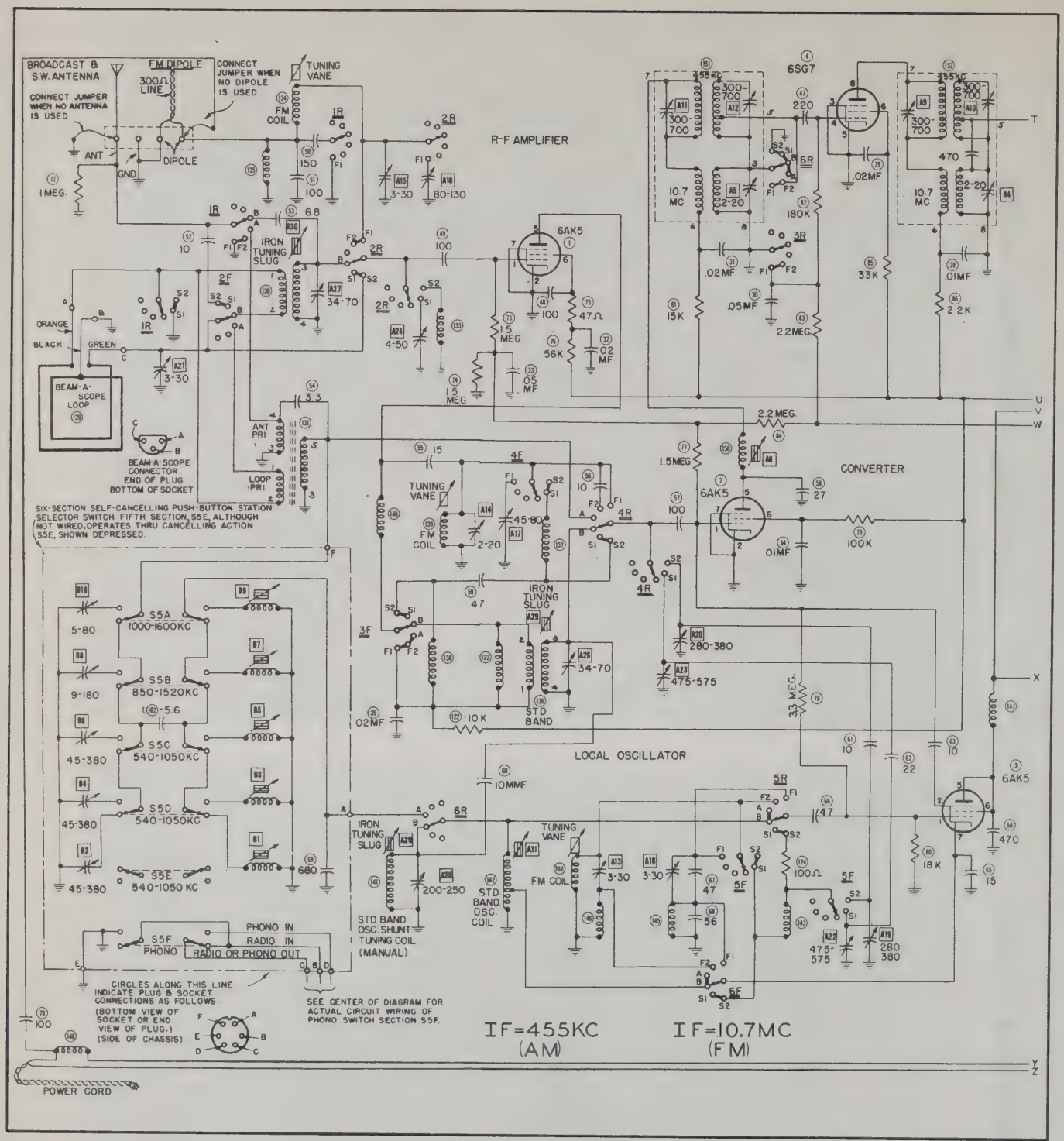




CHASSIS—BOTTOM VIEW



CHASSIS—BOTTOM VIEW

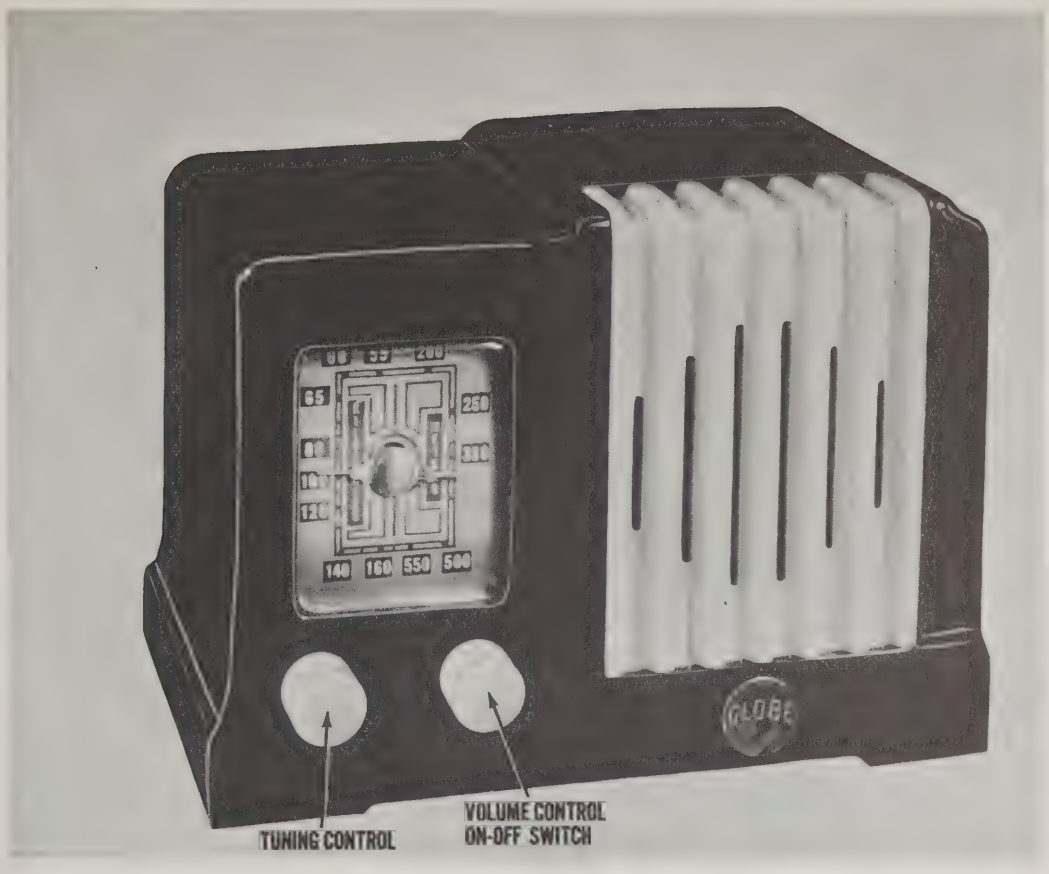


VOLTAGE AND RESISTANCE TAKEN IN BROADCAST POSITION

VOLTAGE READINGS

ITEM	TUBE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8
1	6AK5	-.1V.DC	0V.	0V.	6.3V.AC	215V.DC	170V.DC	0V.	
2	6AK5	-.6V.DC	0V.	0V.	6.3V.AC	225V.DC	175V.DC	0V.	
3	6AK5	-2.1V.DC	0V.	0V.	6.3V.AC	150V.DC	150V.DC	0V.	
4	6SG7	0V.	0V.	0V.	-.1V.DC	0V.	135V.DC	6.3V.AC	240V.DC
5	6SV7	0V.	0V.	3V.DC	135V.DC	0V.	260V.DC	6.3 V.AC	0V.
6	6SH7	0V.	0V.	0V.	-.5V.DC	0V.	0V.	6.3V.AC	150V.DC
7	6AQ7GT	0V.	65V.DC	0V.	-.5V.DC	75V.DC	0V.	0V.	6.3V.AC
8	6V6GT	0V.	0V.	310V.DC	270V.DC	0V.	0V.	6.3V.AC	15V.DC
9	6SC7	0V.	92V.DC	-.3V.DC	-.35V.DC	70V.DC	0V.	3.2V.AC	3.2V.AC
10	5Y3GT	0V.	330V.DC	0V.	320V.AC	0V.	320V.AC	0V.	330V.DC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE



GLOBE
MODEL 551

GLOBE
MODEL 551

GLOBE MODEL 551

TRADE NAME	Globe, Model 551
MANUFACTURER	Globe Electronics, Inc., 225 W. 17th St., New York, N.Y.
TYPE SET	AC-DC Operated Superheterodyne Receiver
TUBES (FIVE)	Types, 14Q7 Converter, 14A7 IF Amp., 14B6 Det.-AVC-AF, 35A5 Power Output, 35Y4 Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	540-1650KC RATING .300 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap fully open and set pointer to last reference mark at high freq. end of dial. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and chassis. Volume control should be at maximum. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
200MMFD	High side to ext. ant. lead. Low side to chassis.	1600KC	1600KC	"	A5	Adjust for maximum output.
200MMFD	"	1400KC	Tune for maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: GLOBE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	14Q7	14Q7	8AL	
2	IF Amp.	14A7	14A7	8V	
3	Det.-AVC-AF	14B6	14B6	8W	
4	Power Output	35A5	35A5	6AA	
5	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: GLOBE PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	40	150		EL-24	AF84D4A†	UP4215	FP306†	DY-4020-150	■ Filter
B	20	150							▲ "
7	.05	400		TC-15	484-05	DT4S5	TP426	S-4-05	Line Filter
8	.01	200		TC-11	484-01	DT4S1	TP421	S-4-01	Output Plate Bypass
9	.01	200		TC-11	484-01	DT4S1	TP421	S-4-01	Audio Coupling
10	.005	600		TC-25	684-005	DT6D6	TP408	S-6-005	" "
11	.05	200		TC-15	484-05	DT4S5	TP426	S-4-05	AVC Filter
12	.005	400		TC-25	484-005	DT6D5	TP408	S-6-005	Ant. Isolation
13	.05	200		TC-15	484-05	DT4S5	TP426	S-4-05	RF Bypass Pwr. Supp.
14	200	500		1FM-32	1468-0002	5W5T2	MC237	M0.5-32	Audio Plate Bypass
15	200	500		1FM-32	1468-0002	5W5T2	MC237	M0.5-32	IF Bypass Vol. Cont.
16	50	500		1FM-45	1468-00005	5W5Q5	MC225	M0.5-45	Osc. Grid Capacitor

†Do not use bypass section.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: GLOBE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
17A	500KΩ	1		MR48	D13-133	M-60-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 17A per instructions
C	Switch			M26	41	SW-A	" " " " "

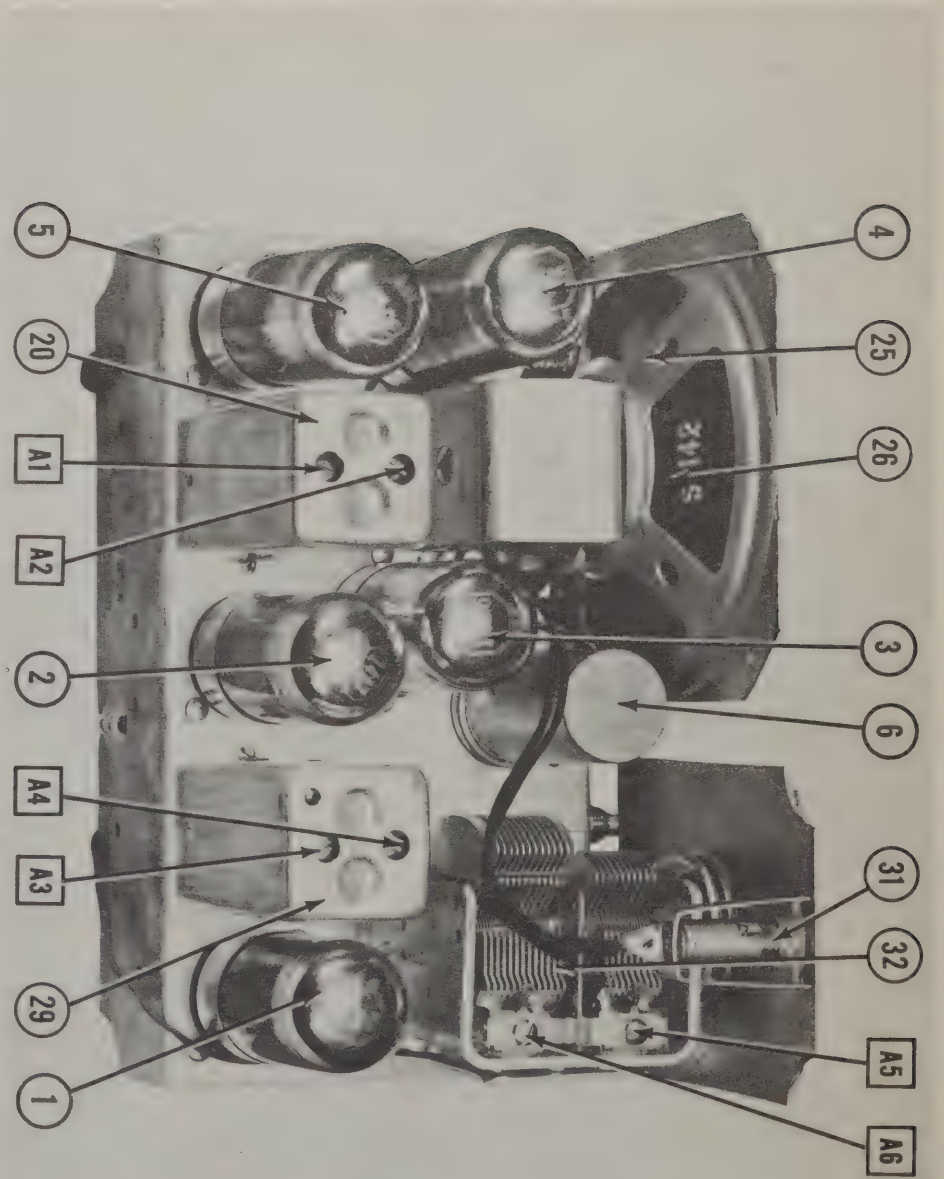
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: GLOBE PART No.	IRC PART No.	IDENTIFICATION CODES
18	18KΩ	½		BTS-18K	Br.-Gray-Or. Oscillator Grid
19	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
20	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
21	220KΩ	½		BTS-220K	Red-Red-Yl. AF Plate Load
22	470K	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
23	120Ω	½		BW-½-120	Br.-Red-Br. Output Cathode

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: GLOBE PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
24	1700Ω	3.1Ω	170Ω	.5Ω		A-3865	T22S45		

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			GLOBE PART No.	JENSEN PART No.		
25	FIELD PM	VC IMP. 3.1Ω	42W11			
26	CONE DIA. 4"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	GLOBE PART No.	MEISSNER PART No.	
27	Ant. Coil	35Ω	6.5Ω		14-1026	
28	Osc. Coil		5Ω		14-1040	
29	Input IF	17.5Ω	17.5Ω	K-102-J45	16-6658	
30	Output IF	28Ω	27Ω	K-102-J941	16-6660	

DIAL LIGHT

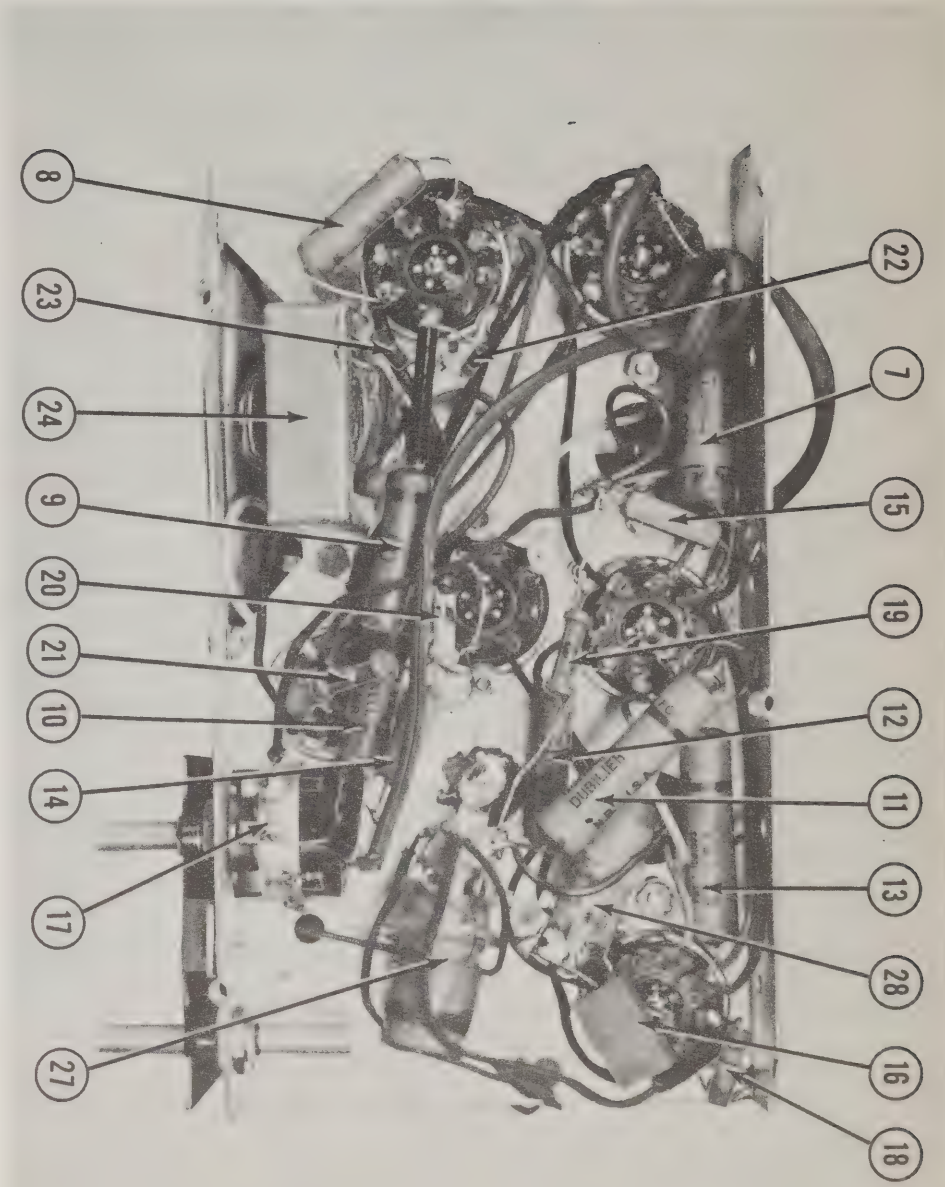
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					GLOBE PART No.		
31	Bayonet	7.5	0.20	White			Type 51

MISCELLANEOUS

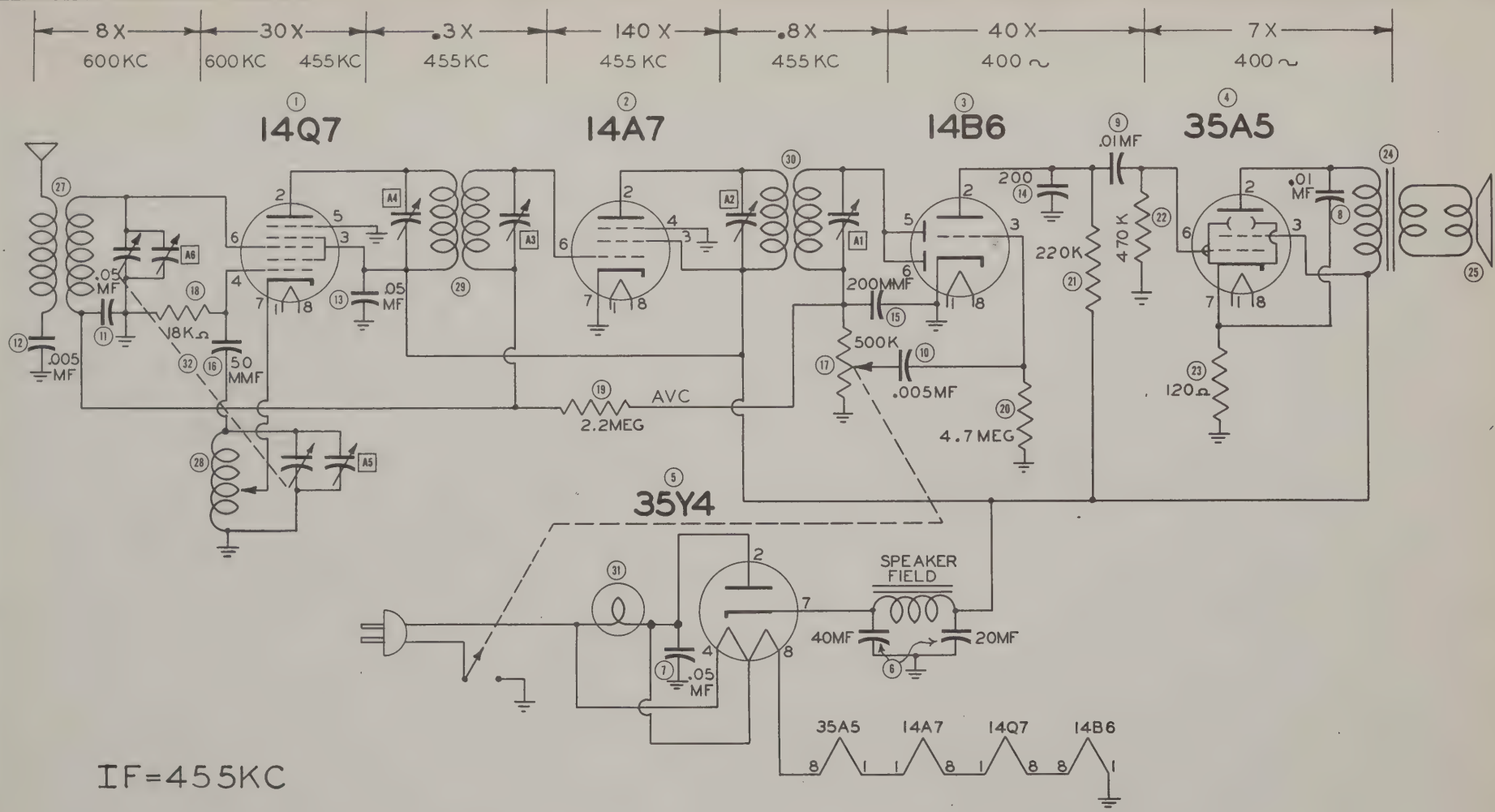
ITEM No.	PART NAME	GLOBE PART No.	NOTES
32	2 Gang Var. Cap.	G-1436Z	(26-472MMF, 34-205MMF)

DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



GLOBE MODEL 551



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	30 V.AC	87 V.DC	87 V.DC	-6.2 V.DC	0 V.	-3.5 V.DC	0 V.	15 V.AC
2	14A7	44 V.AC	87 V.DC	87 V.DC	0 V.	0 V.	-3.5 V.DC	0 V.	30 V.AC
3	14B6	0 V.	60 V.DC	-.75 V.DC	0 V.	0 V.	-.5 V.DC	0 V.	15 V.AC
4	35A5	44 V.AC	95 V.DC	103 V.DC	0 V.	0 V.	5.6 V.DC	85 V.AC	
5	35Y4	117 V.AC	113 V.AC	0 V.	113 V.AC	0 V.	0 V.	118 V.DC	85 V.AC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	27Ω	180KΩ	180KΩ	18KΩ	0Ω	3MEG.	5Ω	12Ω
2	14A7	36Ω	180KΩ	180KΩ	0Ω	0Ω	3MEG.	0Ω	27Ω
3	14B6	0Ω	400KΩ	5MEG.	0Ω	INF.	480KΩ	0Ω	12Ω
4	35A5	36Ω	180KΩ	180KΩ	INF.	INF.	450KΩ	110Ω	68Ω
5	35Y4	90Ω	87Ω	INF.	87Ω	INF.	INF.	180KΩ	68Ω

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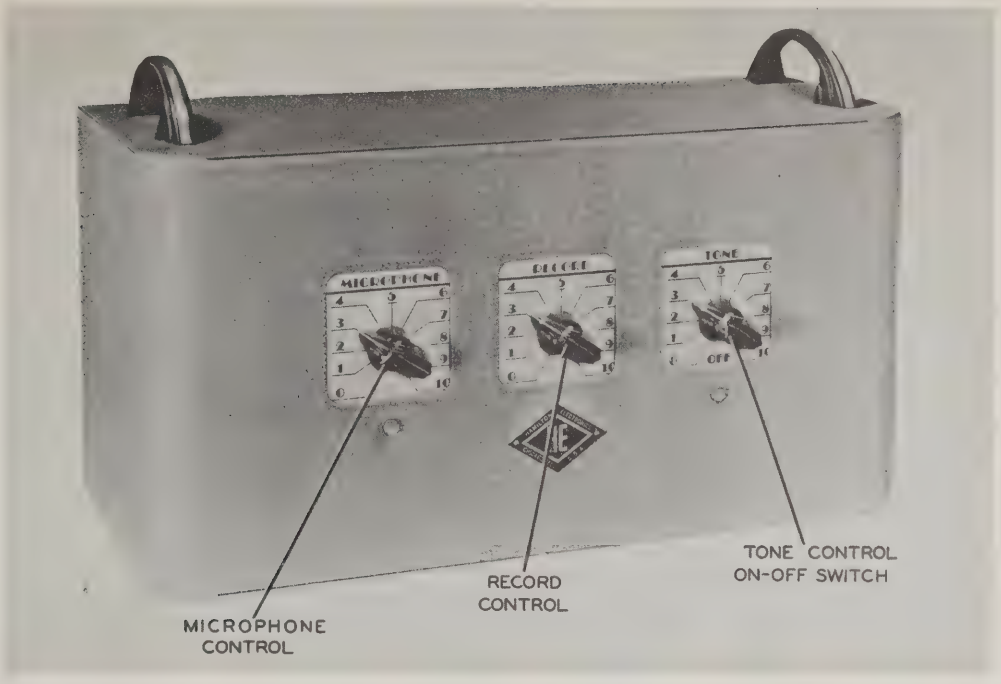
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

476-16

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



HAMILTON MODEL H-15-S

TRADE NAME	Hamilton, Model H-15-S
MANUFACTURER	Hamilton Electronics Co., 2726 Pratt Ave., Chicago 45, Ill.
TYPE SET	AC Operated 5 Tube Amplifier
TUBES (FIVE)	Types, 6SJ7 Mike Amp., 6SC7 Phase Inverter-AF, (2) 6L6 Power Output, 5Y3GT/G Rectifier.
POWER SUPPLY	110-120 Volts AC
RATING	.760 Amps. @ 117V AC

NOTE: READINGS TAKEN WITH ALL CONTROLS AT MAXIMUM.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SJ7	0V.	3.1 V.AC	10 V.DC	-.05V.DC	.9 V.DC	10 V.DC	3.1 V.AC	120 V.DC
2	6SC7	0V.	130 V.DC	0V.	0V.	140 V.DC	1.2 V.DC	3.1 V.AC	3.1 V.AC
3	6L6	0V.	3.1 V.AC	330V.DC	305V.DC	0V.	260V.DC	3.1 V.AC	20 V.DC
4	6L6	0V.	3.1 V.AC	330V.DC	305V.DC	0V.	260V.DC	3.1 V.AC	20 V.DC
5	5Y3GT/G	0V.	350V.DC	0V.	350V.AC	0V.	350V.AC	0V.	350V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SJ7	0Ω	.1Ω	3.2 MEG.	3.1 MEG.	2 KΩ	3.2 MEG.	.1Ω	490 KΩ
2	6SC7	0Ω	240 KΩ	260 KΩ	16 KΩ	240 KΩ	690Ω	.1Ω	.1Ω
3	6L6	0Ω	.1Ω	90 KΩ	90 KΩ	160 KΩ	90 KΩ	.1Ω	180Ω
4	6L6	0Ω	.1Ω	90 KΩ	90 KΩ	200 KΩ	90 KΩ	.1Ω	180Ω
5	5Y3GT/G	INF.	90 KΩ	INF.	240Ω	INF.	225Ω	INF.	90 KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: HAMILTON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Mike Amp.	6SJ7	6SJ7	8N	
2	Phase Inverter-AF	6SC7	6SC7	8S	
3	Power Output	6L6	6L6	7AC	
4	" "	6L6	6L6	7AC	
5	Rectifier	5Y3GT/G	5Y3GT/G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: HAMILTON PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	20	450		EL-220	AF44J	UP6BJ38	FP234	DY-2x20-450	■ Filter
B	20	450							▲ "
7A	10	450		EL-210	AF22J	UP1145	FP231	DY-2x10-450	■ "
B	10	450							▲ "
8	10	25		TA-10	PRS25-10	BR102A	TC22	M-10-25	Cath. Bypass
9	10	25		TA-10	PRS25-10	BR102A	TC22	M-10-25	" "
10	.02	600		TC-12	684-02	DT6S2	TP412	S-6-02	Line Bypass
11	.05	600		TC-15	684-05	DT6S5	TP415	S-6-05	Audio Coupling
12	.05	600		TC-15	684-05	DT6S5	TP415	S-6-05	" "
13	.02	600		TC-12	684-02	DT6S2	TP412	S-6-02	Tone Compensation
14	.02	600		TC-12	684-02	DT6S2	TP412	S-6-02	Audio Coupling
15	.05	600		TC-15	684-05	DT6S5	TP415	S-6-05	Mic. Amp. Screen Bypass

CONTROLS

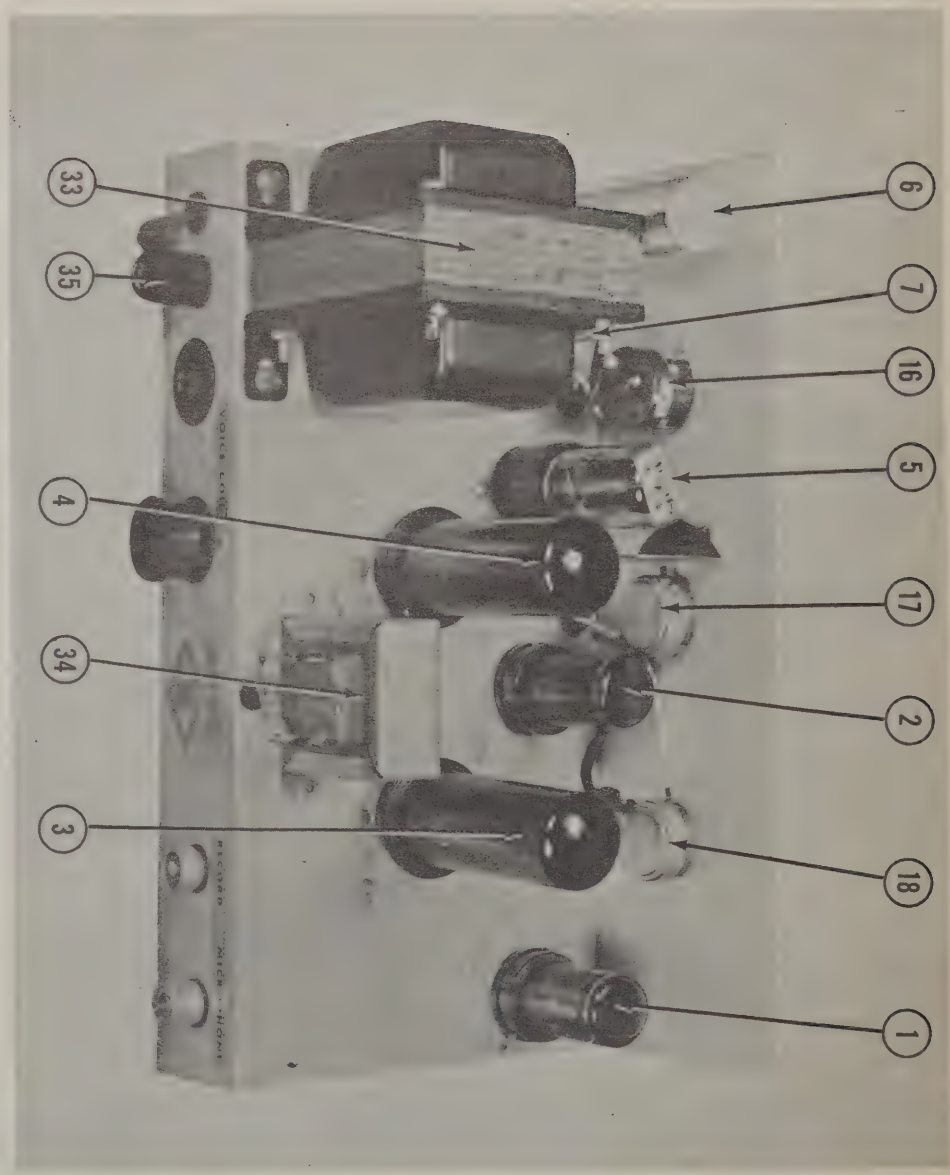
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: HAMILTON PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
16A	1 Meg.	1		MR53	D13-137	M-63-Z	Tone Control
B	Shaft			Not Req.	A	Not Req.	Attach to 16A per instructions
C	Switch			M26	41	SW-A	" " " " "
17A	500KΩ	1		MR50	D11-133	M-58-S	Phono Control
B	Shaft			Not Req.	A	Not Req.	Attach to 17A per instructions
18A	500KΩ	1		MR50	D11-133	M-58-S	Mike Control
B	Shaft			Not Req.	A	Not Req.	Attach to 18A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: HAMILTON PART No.	IRC PART No.	IDENTIFICATION CODES
19	3.2 Meg.	½		BTS-3.3 Meg.	Or.-Red-Grn. Mic. Amp. Grid
20	2500Ω	½		BTS-2700	Red-Grn.-Red Mic. Amp. Cathode
21	3.2 Meg.	½		BTS-3.3 Meg.	Or.-Red-Grn. Mic. Amp. Screen Dropping
22	400KΩ	½		BTS-390K	Yl.-Blk.-Yl. Mic. Amp. Plate Load
23	750Ω	½		BTS-820	Vi.-Grn.-Br. AF Cathode
24	150KΩ	½		BTS-150K	Br.-Grn.-Yl. AF Plate Load
25	150KΩ	½		BTS-150K	Br.-Grn.-Yl. Phase Inverter Plate Load
26	15KΩ	½		BTS-15K	Br.-Grn.-Or. Phase Inverter Grid
27	150KΩ	½		BTS-150K	Br.-Grn.-Yl. Output Grid
28	150KΩ	½		BTS-150K	Br.-Grn.-Yl. Output Grid
29	200Ω	10		AB-200	Output Cathode
30	5000Ω	10		AB-5000	Filter
31	18KΩ	½		BTS-18K	Br.-Gray-Or. Voltage Dropping
32	18KΩ	½		BTS-18K	Br.-Gray-Or. " "
36	500KΩ	½		BTS-470K	Grn.-Blk.-Yl. Series Phono-See Note

Note-Not used in all models.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	SEC. 3	HAMILTON PART No.	STANCOR PART No.	THORDARSON PART No.	
33	117V AC @ .76A	700V CT @ .105A	4.9V AC @ 1.8A	6.3V AC 2.4A		P-6013#	T22R32*	*Drill new mounting holes. #Mount vertically with universal brackets.

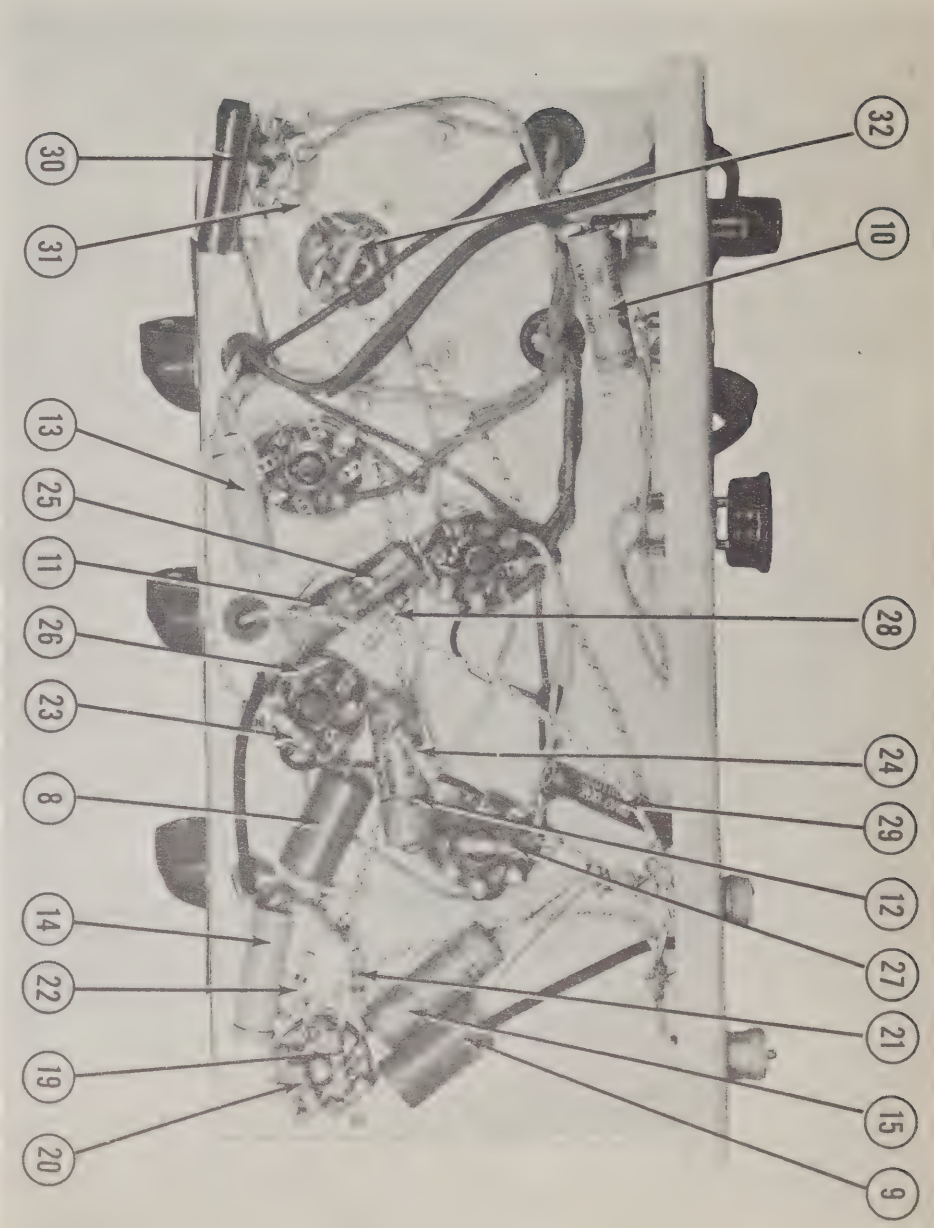
TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		HAMILTON PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
34	3400Ω CT	2Ω 4Ω 6Ω 8Ω 12Ω	400Ω CT	1.1Ω 1.5Ω 1.7Ω 1.9Ω 2.4Ω		A-3852	T22S72*		*Drill new mounting holes.

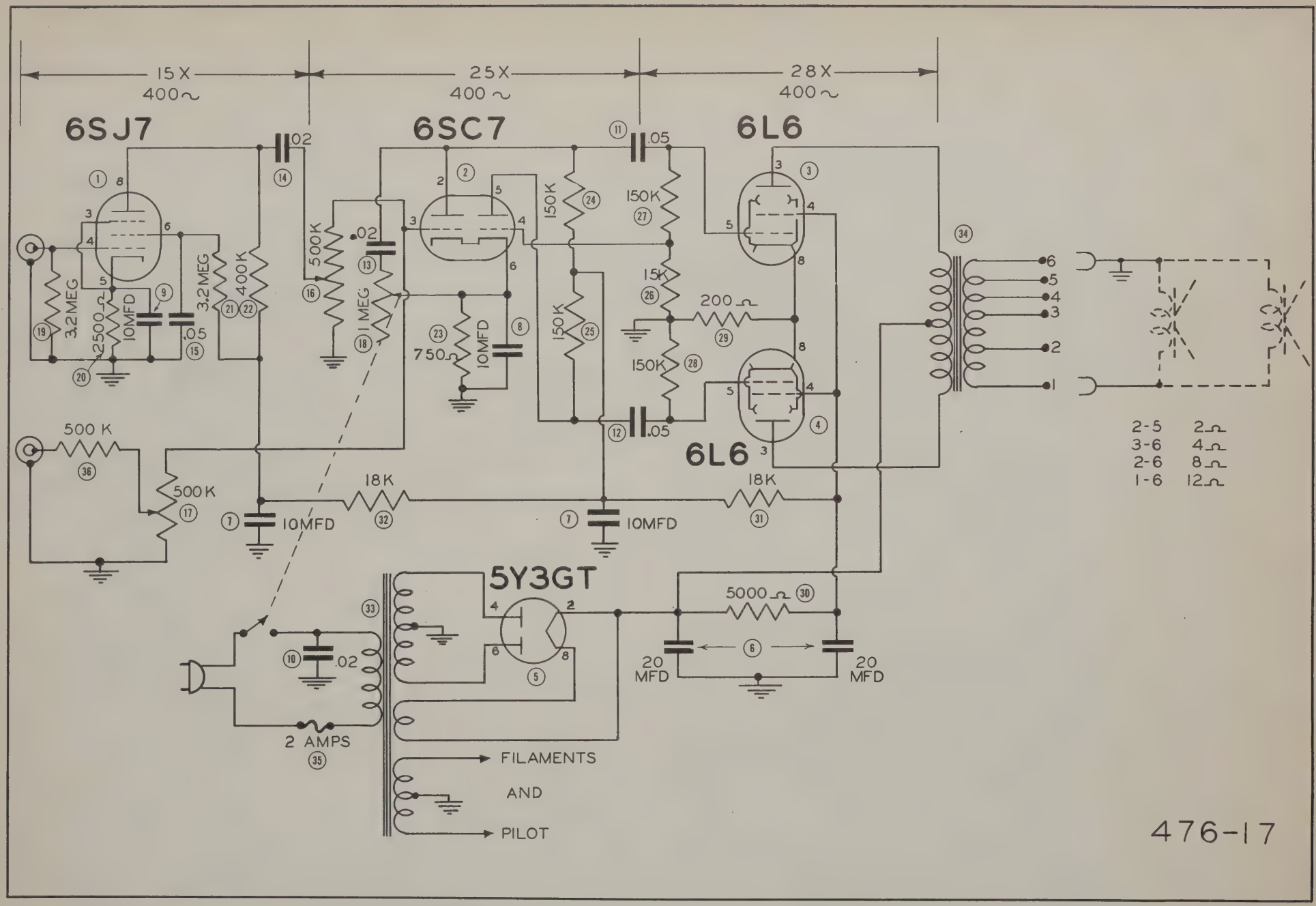
MISCELLANEOUS

ITEM No.	PART NAME	HAMILTON PART No.	NOTES
35	Fuse		2 Amp.-3AG

CHASSIS—BOTTOM VIEW



HAMILTON MODEL H-15-S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400~
25X
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28X
400~
6SJ7
6SC7
6L6
6L6
5Y3GT
.02
.05
3.2MEG
2500Ω
10MFD
.05
3.2MEG
400K
500K
.02
1 MEG
10MFD
750Ω
150K
150K
150K
15K
200Ω
150K
.05
500 K
500K
18K
18K
10MFD
10MFD
.02
2 AMPS
5000Ω
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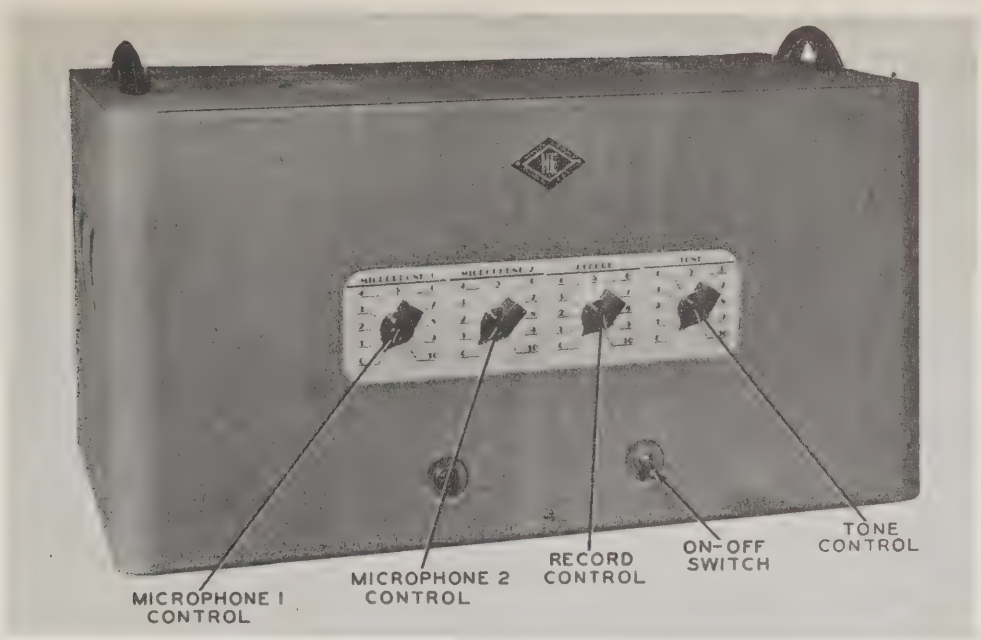
FILAMENTS
AND
PILOT
2-5 2Ω
3-6 4Ω
2-6 8Ω
1-6 12Ω
476-17



HAMILTON
MODEL H-50-2S

HAMILTON
MODEL H-50-2S

HAMILTON MODEL H-50-2S

TRADE NAME	Hamilton, Model H-50-2S
MANUFACTURER	Hamilton Electronics, 2726 Pratt Ave., Chicago 25, Illinois
TYPE SET	AC Operated 3 Channel Amplifier
TUBES (NINE)	Types, 6SJ7 1st Mike Amp., 6SJ 2nd Mike Amp., 6SC7 Phono Amp.-AF, 6SC7 Driver- Phase Inverter, (4) 807 Power Output, 83 Rectifier.
POWER SUPPLY	110 120 Volts AC RATING 2.3 Amp. @ 117 Volts AC

NOTE: ALL CONTROLS MAXIMUM CLOCKWISE.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	6SJ7	0V.	3.2 V.AC	9.5V.DC	-3 V.DC	1.15V.DC	9.5V.DC	3.2 V.AC	110 V.DC	
2	6SJ7	0V.	3.2 V.AC	9 V.DC	-3 V.DC	1.3 V.DC	9 V.DC	3.2 V.AC	110V.DC	
3	6SC7	0V.	95V.DC	0V.	0V.	95 V.DC	1.25V.DC	3.2 V.AC	3.2 V.AC	
4	6SC7	0V.	170 V.DC	0V.	0V.	145 V.DC	1.75 V.DC	3.2 V.AC	3.2 V.AC	
5	807	3.2 V.AC	305 V.DC	0V.	27 V.DC	3.2 V.AC				430VDC
6	807	3.2 V.AC	305 V.DC	0V.	27 V.DC	3.2 V.AC				430VDC
7	807	3.2 V.AC	305 V.DC	0V.	27 V.DC	3.2 V.AC				430VDC
8	807	3.2 V.AC	305 V.DC	0V.	27 V.DC	3.2 V.AC				430VDC
9	83	500 V.DC	400 V.AC	400 V.AC	500 V.DC					

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	6SJ7	0 Ω	∞ Ω	18 MEG.	3.5MEG.	3 K Ω	18 MEG.	∞ Ω	15 MEG.	
2	6SJ7	0 Ω	∞ Ω	18 MEG.	3.4 MEG.	3 K Ω	18 MEG.	∞ Ω	15 MEG.	
3	6SC7	0 Ω	15 MEG.	420 K Ω	245 K Ω	15 MEG.	1400 Ω	∞ Ω	∞ Ω	
4	6SC7	0 Ω	15 MEG.	410 K Ω	9K Ω	15 MEG.	1400 Ω	∞ Ω	∞ Ω	
5	807	∞ Ω	15 MEG.	155K Ω	92 Ω	∞ Ω				15 MEG.
6	807	∞ Ω	15 MEG.	155K Ω	92 Ω	∞ Ω				15 MEG.
7	807	∞ Ω	15 MEG.	165 K Ω	92 Ω	∞ Ω				15 MEG.
8	807	∞ Ω	15 MEG.	165 K Ω	92 Ω	∞ Ω				15 MEG.
9	83	15MEG.	28 Ω	36 Ω	15 MEG.					

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: HAMILTON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Mic. 1 Amp.	6SJ7	6SJ7	8N	
2	Mic. 2 Amp.	6SJ7	6SJ7	8N	
3	Phono Amp.-AF	6SC7	6SC7	8S	
4	Driver-Phase Inv	6SC7	6SC7	8S	
5	Power Output	807	807	T-5BB	6L6 Alternate
6	" "	807	807	T-5BB	" "
7	" "	807	807	T-5BB	" "
8	" "	807	807	T-5BB	" "
9	Rectifier	83	83	4C	5Z3 Alternate

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: HAMILTON PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
10A	8	600			AX-1025	KC-6			Filter
B	4	600							"
11A	4	600			AX-1025	KC-6			"
B	4	600							"
C	4	600							"
12A	20	150		EL-221	AF44D	UP2215	FP211	DY-2x20-150	Cath. Bypass
B	20	150							" "
13	20	25		TA-25	PRS25-25	BR202A	TC26	M-25-25	" "
14	.01	600		PX-116	638T-01	TVC6S1-6	OT101	XT1MS6-.01	Line Bypass
15	.1	600		BP-216	630-.1-.1	DYR6011	CBD602	2XDRMR6-1	Audio Coupling
16	.1	600		BP-216	630-.1-.1	DYR6011	CBD602	2XDRMR6-1	" "
17	.06	600		PX-166	684-06	TVC6S5	OT106	XT1MS6-.06	Tone Compensation
18	.06	600		PX-166	684-06	TVC6S5	OT106	XT1MS6-.06	Audio Coupling
19	.01	600		PX-116	638T-01	TVC6S1-6	OT101	XT1MS6-.01	" "
20	.01	600		PX-116	638T-01	TVC6S1-6	OT101	XT1MS6-.01	" "
21A	.1	600		BP-216	630-.1-.1	DYR6011	CBD602	2XDRMR6-1	Mic. Amp. Screen Bypass
B	.1	600							" " " "

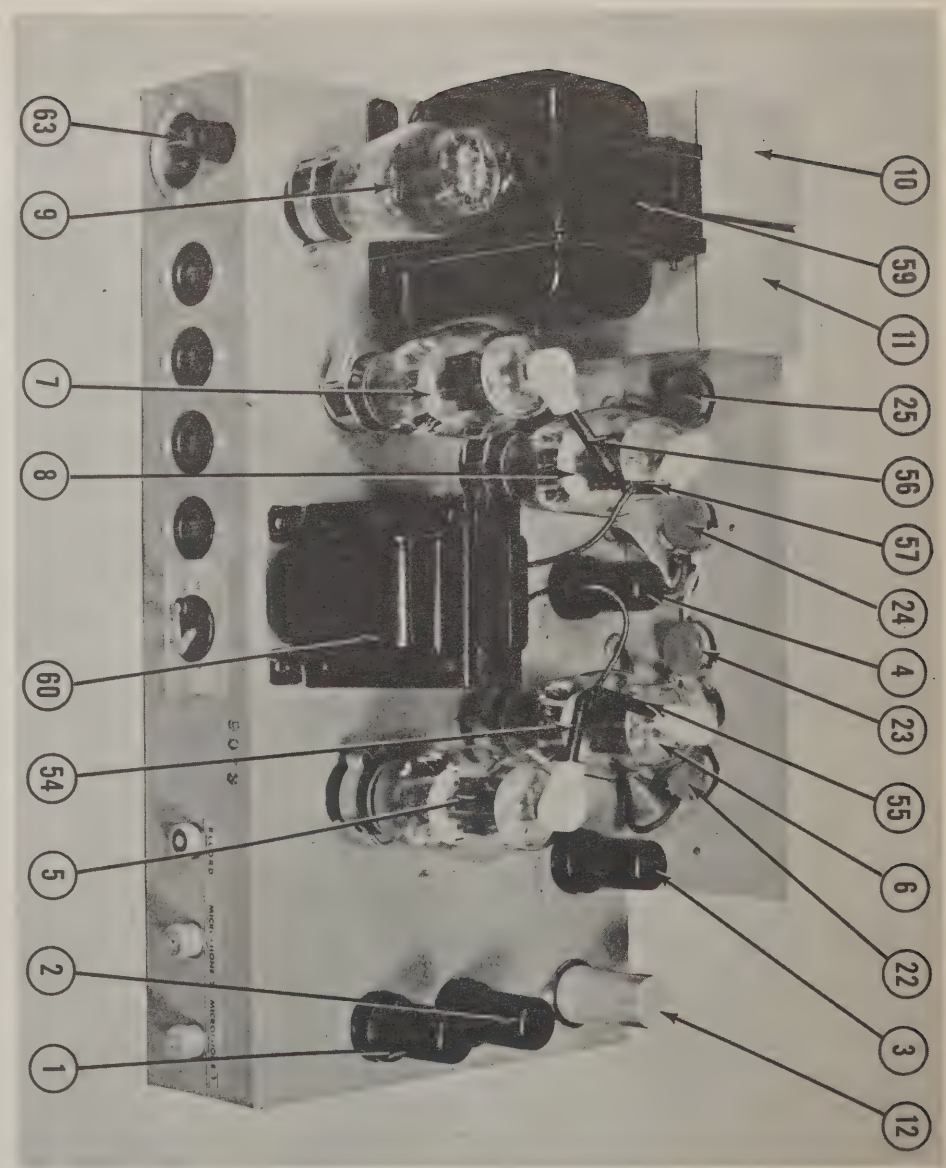
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: HAMILTON PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
22A	500KΩ	1		MR48	D13-133	M-60-Z	Mike 1-Control
B	Shaft			Not Req.	A	Not Req.	Attach to 22A per instructions
23A	500KΩ	1		MR48	D13-133	M-60-Z	Mike 2-Control
B	Shaft			Not Req.	A	Not Req.	Attach to 23A per instructions
24A	500KΩ	1		MR48	D13-133	M-60-Z	Phono Control
B	Shaft			Not Req.	A	Not Req.	Attach to 24A per instructions
25A	500KΩ	1		MR48	D13-133	M-60-Z	Tone Control
B	Shaft			Not Req.	A	Not Req.	Attach to 25A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: HAMILTON PART No.	IRC PART No.	IDENTIFICATION CODES
26	3.2 Meg.	½		BTS-3.3 Meg.	Or.-Red-Grn. 1st Mic. Amp. Grid
27	3.2 Meg.	½		BTS-3.3 Meg.	Or.-Red-Grn. 2nd Mic. Amp. Grid
28	3300Ω	½		BTS-3300	Or.-Or.-Red 1st Mic. Amp. Cathode
29	3300Ω	½		BTS-3300	Or.-Or.-Red 2nd Mic. Amp. Cathode
30	300KΩ	½		BTS-330K	Or.-Blk.-Yl. 1st Mic. Amp. Plate Load
31	300KΩ	½		BTS-330K	Or.-Blk.-Yl. 2nd Mic. Amp. Plate Load
32	3.2 Meg.	½		BTS-3.3 Meg.	Or.-Red-Grn. 1st Mic. Amp. Screen Dropping
33	3.2 Meg.	½		BTS-3.3 Meg.	Or.-Red-Grn. 2nd Mic. Amp. Screen Dropping

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	HAMILTON PART No.	IRC PART No.	
34	150Ω	½		BTS-1500	Br.-Grn.-Red AF Cathode
35	150KΩ	½		BTS-150K	Br.-Grn.-Yl. AF Plate Load
36	3.2 Meg.	½		BTS-3.3 Meg.	Or.-Red-Grn. Feedback
37	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Driver Grid
38	1500Ω	½		BTS-1500	Br.-Grn.-Red Driver Cathode
39	150KΩ	½		BTS-150K	Br.-Grn.-Yl. Driver Plate Load
40	150KΩ	½		BTS-150K	Br.-Grn.-Yl. Phase Inverter Plate Load
41	10KΩ	½		BTS-10K	Br.-Blk.-Or. Phase Inverter Grid
42	150KΩ	½		BTS-150K	Br.-Grn.-Yl. Output Grid
43	150KΩ	½		BTS-150K	Br.-Grn.-Yl. Output Grid
44	150Ω	½		BW-½-150	Br.-Grn.-Br. Parasitic Suppressor
45	150Ω	½		BW-½-150	Br.-Grn.-Br. " "
46	150Ω	½		BW-½-150	Br.-Grn.-Br. " "
47	150Ω	½		BW-½-150	Br.-Grn.-Br. " "
48	18KΩ	½		BTS-18K	Br.-Gray-Or. Voltage Dropping
49	18KΩ	½		BTS-18K	Br.-Gray-Or. " "
50	200Ω	20		DG-200	Output Cathode
51	200Ω	10		AB-200	" "
52	5000Ω	10		AB-5000	Voltage Dropping
53	5000Ω	10		AB-5000	" "
54	20Ω	1		BW-1-22	Red-Blk.-Blk. Parasitic Suppressor
55	20Ω	1		BW-1-22	Red-Blk.-Blk. " "
56	20Ω	1		BW-1-22	Red-Blk.-Blk. " "
57	20Ω	1		BW-1-22	Red-Blk.-Blk. " "

FILTER CHOKE

ITEM NO.	RATINGS			REPLACEMENT DATA			INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D.C. RESISTANCE	INDUCTANCE (0 CURRENT 1000~)	HAMILTON PART NO.	STANCOR PART NO.	THORDARSON PART NO.	
58	.25A	200Ω	10 Henries		C-1703	T20C56*	*Drill new mounting holes.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	SEC. 3	HAMILTON PART No.	STANCOR PART No.	THORDARSON PART No.	
59	117V AC @ 2.3A	800V CT @ .250A	5.6V AC @ 3.1A	6.5V AC @ 5.1A		P-8315#	T22R34	#Mount vertically with universal mounting brackets.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		HAMILTON PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
60	3200Ω CT	2Ω 4Ω 8Ω 16Ω 125Ω 250Ω 500Ω	50Ω CT	.1Ω .2Ω .3Ω .5Ω 4Ω 8Ω 12Ω		A-3802*	T22S78*		*Drill new mounting holes.

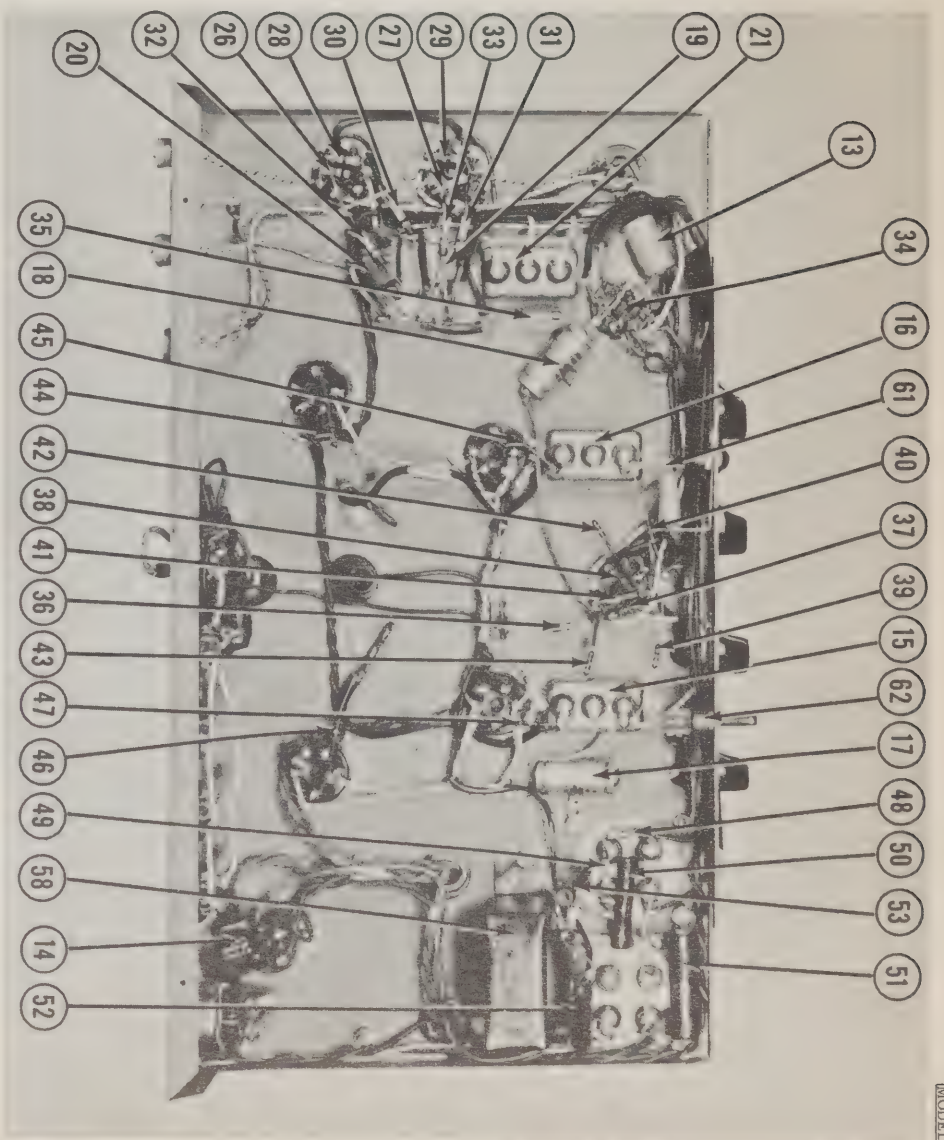
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					HAMILTON PART No.		
61	Bayonet	6-8	0.40	White			Type 55

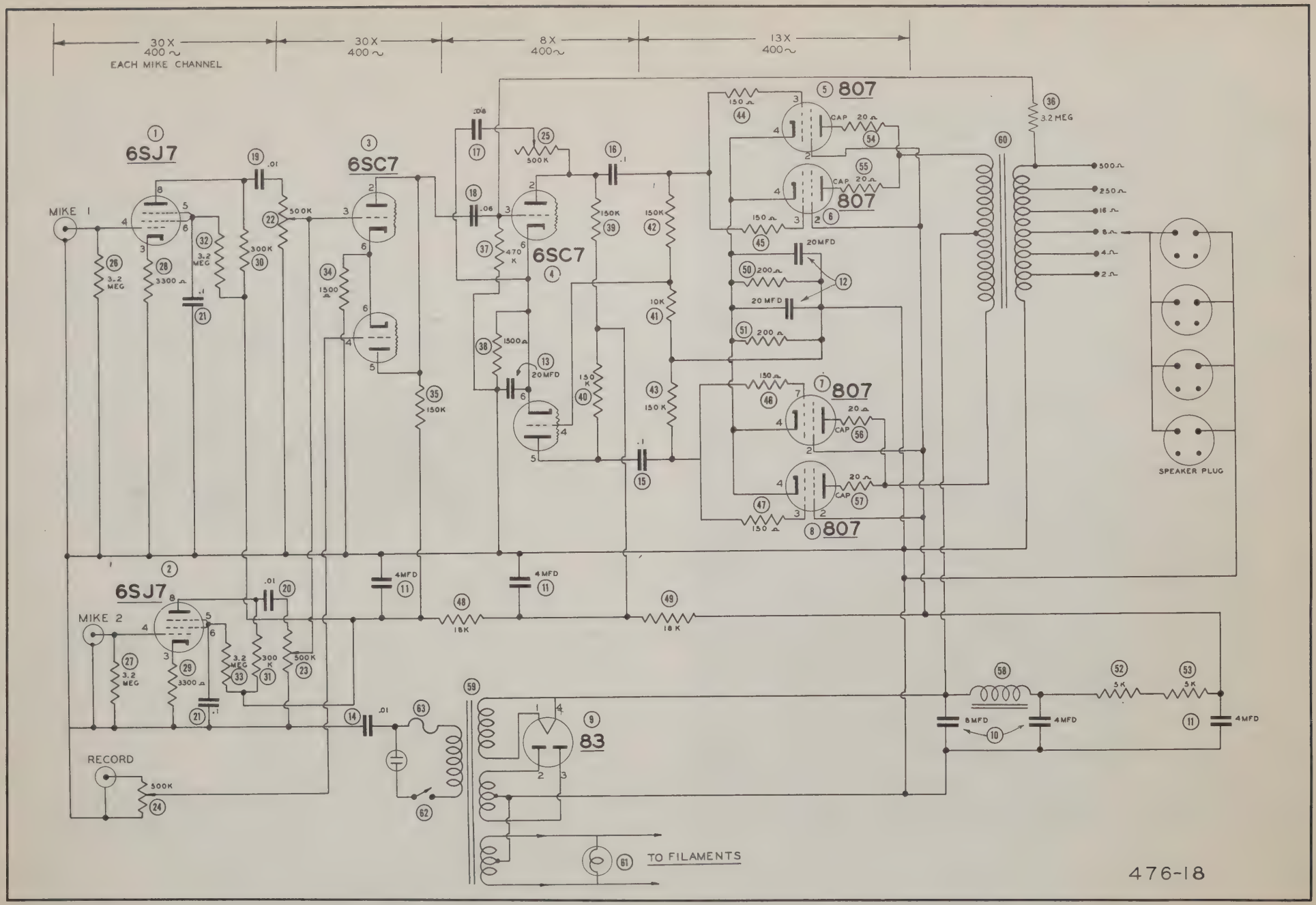
MISCELLANEOUS

ITEM No.	PART NAME	HAMILTON PART No.	NOTES
62	Switch		On-Off (SPST)
63	Fuse		4A-3AG

CHASSIS—BOTTOM VIEW



HAMILTON MODEL H-50-2S


30X 400~ EACH MIKE CHANNEL
30X 400~
8X 400~
13X 400~
6SJ7
6SC7
6SC7
807
807
807
807
83
MIKE 1
MIKE 2
RECORD
TO FILAMENTS
SPEAKER PLUG
476-18

KNIGHT MODEL 6A-195

TRADE NAME	Knight, Model 6A-195
SUPPLIER	Allied Radio Corp., 833 W. Jackson Blvd., Chicago 7, Ill.
TYPE SET	AC-DC Operated Superheterodyne Receiver-Self Contained Loop Antenna
TUBES (SIX)	Types, 12SK7 or 12BA6 RF Amp., 12SA7 Converter, 12SK7 or 12BA6 IF Amp., 12SQ7 or 12AT6 Det.-AVC-AF, 35L6GT Power Output, 35Z5GT or 35W4 Rectifier.
POWER SUPPLY	110-125 Volts AC-DC
TUNING RANGE—BROADCAST	540-1720KC **SHORT WAVE** .220 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn variable fully closed and set pointer parallel to horizontal line on dial plate at low frequency end. Volume control should be at maximum and output of signal generator no higher than necessary to obtain output reading. Use isolation transformer if available. If not connect a capacitor in series with low side of signal generator and B-. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of rear section of variable. Low side to B-.	455KC	Variable fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
.1 MFD.	"	1720KC	"	"	A5	Adjust for maximum output.
200 MMFD	High side to ext. ant. lead. Low side to B-.	1400KC	Tune for maximum output.	"	A6	"

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PARTS LIST AND DESCRIPTIONS

KNIGHT
MODEL 6A-195

TUBES

ITEM No.	USE	REPLACEMENT DATA: KNIGHT PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1A	RF Amp.	12SK7GT	12SK7GT	8N	
B	RF Amp.	12BA6	12BA6	7CC	
2	Converter	12SA7GT	12SA7GT	8AD	
3A	IF Amp.	12SK7GT	12SK7GT	8N	
B	IF Amp.	12BA6	12BA6	7CC	
4A	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
B	Det.-AVC-AF	12AT6	12AT6	7BT	
5	Power Output	35L6GT	35L6GT	7AC	
6A	Rectifier	35Z5GT	35Z5GT	6AD	
B	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: KNIGHT PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	40	150	EC-3	TA-240	PRSA150-40-40	BRL4215	2N514	DSB-2x40-150	Filter - Red
B	20	150							" - White
8	.05	400	PC-5	TC-15	484-05	DT4S5	TP426	S-4-05	Line Filter
9	.01	400	PC-7	TC-11	484-01	DT4S1	TP421	S-4-01	Output Plate Bypass
10	.01	400	PC-7	TC-11	484-01	DT4S1	TP421	S-4-01	Audio Coupling
11	.01	400	PC-7	TC-11	484-01	DT4S1	TP421	S-4-01	" "
12	.05	400	PC-5	TC-15	484-05	DT4S5	TP426	S-4-05	AVC Filter
13	.05	400	PC-5	TC-15	484-05	DT4S5	TP426	S-4-05	AVC Network *
14	.1	400	PC-8	TC-1	484-.1	DT4P1	TP428	S-4-1	Line Isolation
15	.01	400	PC-7	TC-11	484-01	DT4S1	TP421	S-4-01	Ant. Coupling
16	500	500	MC-5	1FM-35	1468-0005	5W5T5	MC245	MO.5-35	Audio Plate Bypass
17	100	500	MC-2	1FM-31	1468-0001	5W5T1	MC235	MO.5-31	IF Bypass Diode
18	56	500	MC-4	1FM-45	1468-00005	5W5Q5	MC225	MO.5-45	Osc. Grid Capacitor
19	100	500	MC-2	1FM-31	1468-0001	5W5T1	MC235	MO.5-31	RF Coupling

*Not used in all models.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: KNIGHT PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
20A	500KΩ	1		MR48	D13-133	M-60-Z	Volume Control. See Note 1
B	Shaft			Not Req.	A	Not Req.	Attach to 20A per instructions
C	Switch			M26	41	SW-A	" " " " "
20A	1 Meg.	1	VC-3	MR53	D13-137	M-63-Z	Volume Control See Note 2
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 20A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

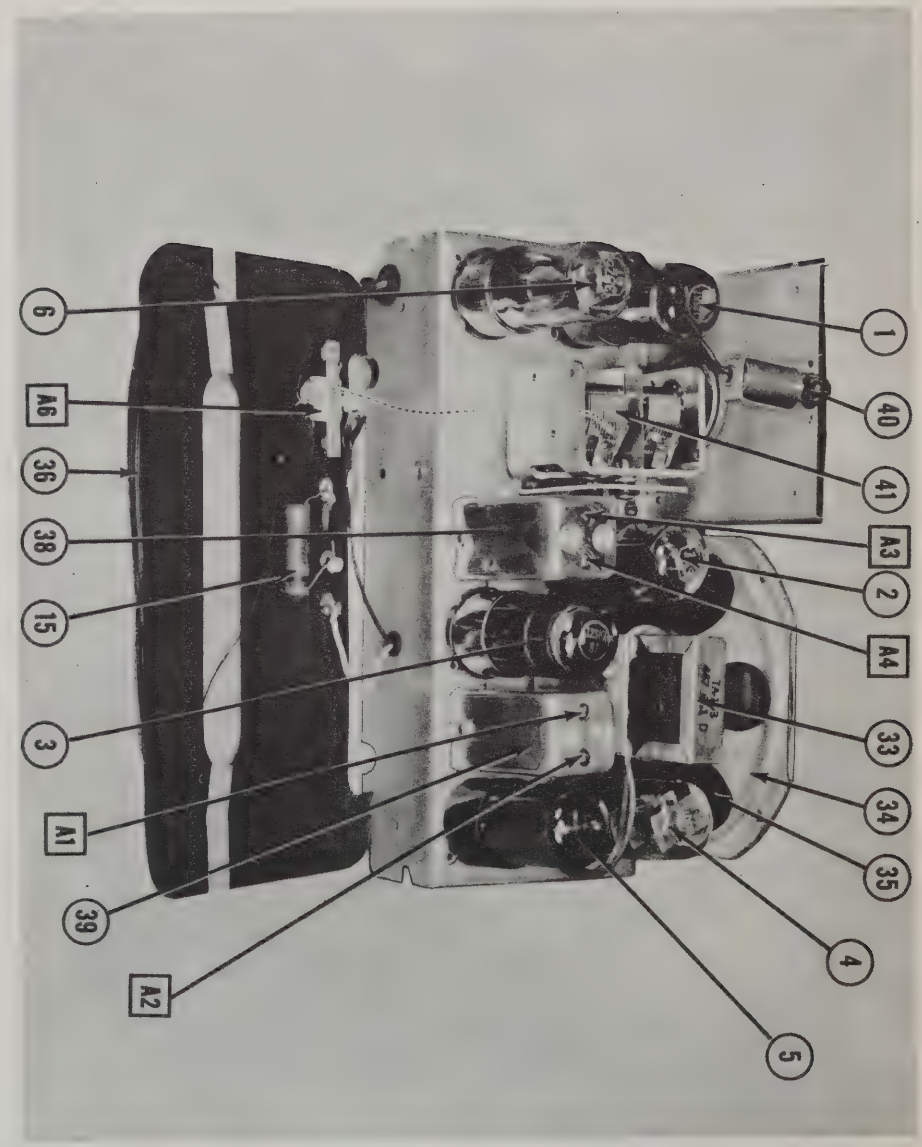
Note 1 Used in later production.
Note 2 " " early " .

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: KNIGHT PART No.	IRC PART No.	IDENTIFICATION CODES
21	2200Ω	½		BTS-2200	Red-Red-Red RF Plate Load
22	2500Ω	1		BTA-2200	Red-Grn.-Red Filter
23	47KΩ	½	IR-10	BTS-47K	Yl.-Vi.-Or. Converter Grid
24	33KΩ	½	IR-16	BTS-33K	Or.-Or.-Or. Oscillator Grid
25	3.9 Meg.	½	IR-23	BTS-3.9 Meg.	Or.-White-Grn. AVC Network See Note 4
26	47KΩ	½	IR-10	BTS-47K	Yl.-Vi.-Or. Diode RF Filter
27	2 Meg.	½	IR-13	BTS-2.2 Meg.	Red-Blk.-Grn. AF Grid
28	510KΩ	½		BTS-470K	Grn.-Br.-Yl. AF Plate Load
29	510KΩ	½		BTS-470K	Grn.-Br.-Yl. Output Grid
30	220Ω	½	IR-5	BW-½-220	Red-Red-Br. " Cathode
31	39Ω	½		BW-½-39	Or.-White-Blk. Rectifier Ballast
32	1 Meg.	½	IR-12	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network See Note 3

Note 3 Not used in all models.
Note 4 Models using Item #32 use a 2 meg. resistor in this application.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		KNIGHT PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
33	2040Ω	2.8Ω	150Ω	.6Ω	Part of SPK-4	A-3876 #	T22S45 #		# Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			KNIGHT PART No.	JENSEN PART No.		
34	FIELD PM	VC IMP. 2.8Ω	SPK-4	ST-105† Mod. P5-X		†Fabricate new mounting bracket.
35	CONE DIA. 4-9/16"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

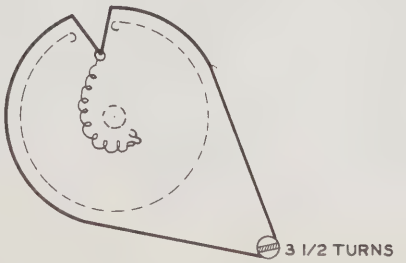
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	KNIGHT PART No.	MEISSNER PART No.	
36	Loop	.1Ω	1.5Ω	LL-1		
37	Osc. Coil		7.8	LO-2	14-1040	
38	Input IF	19Ω	19Ω	LI-1	16-6666	
39	Output IF	20.5Ω	19Ω	LI-2	16-6667	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					KNIGHT PART No.		
40	Bayonet	6-8	0.15	Brown			Type 47

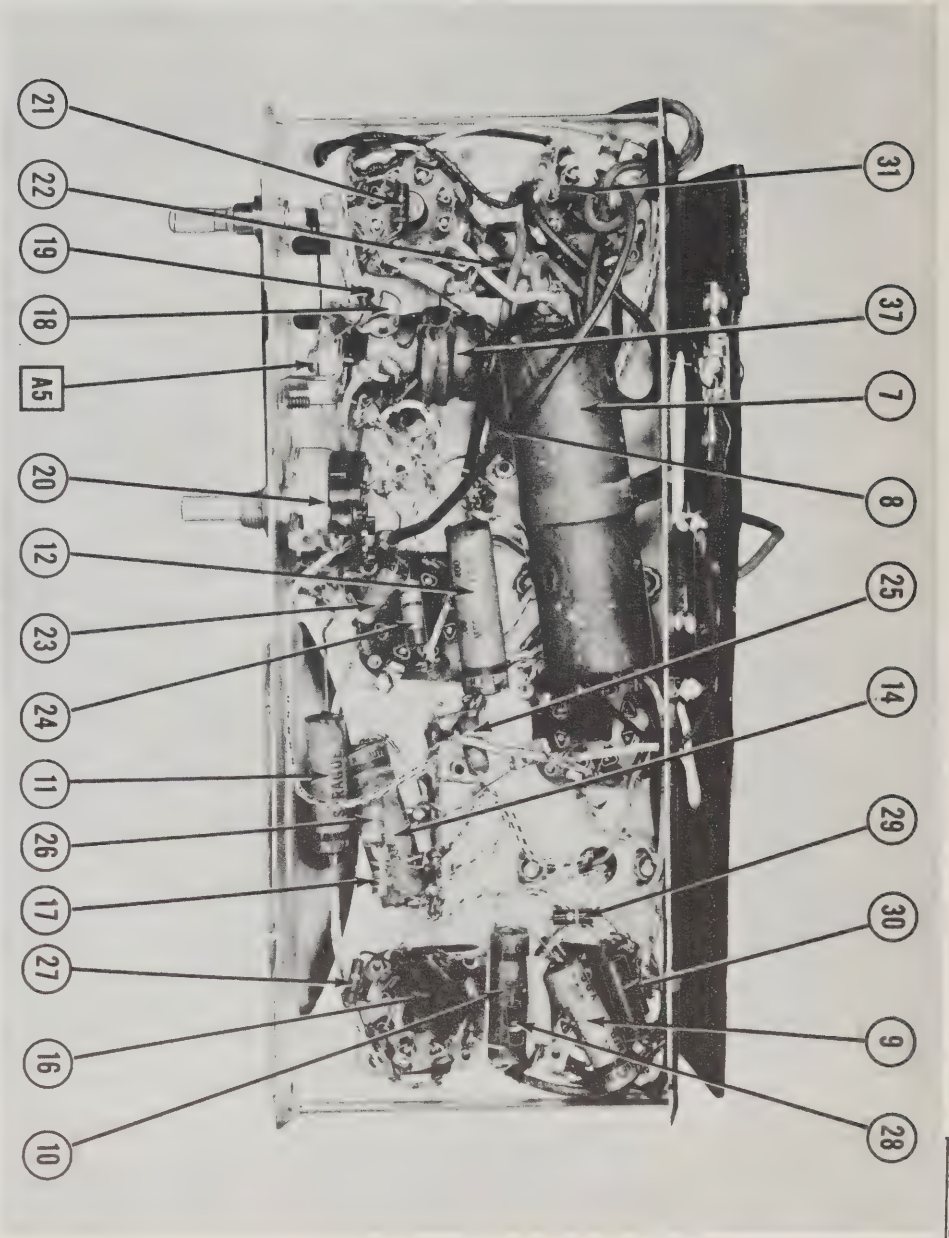
MISCELLANEOUS

ITEM No.	PART NAME	KNIGHT PART No.	NOTES
41	2 Gang Var. Cap.	GC-2	(12-176 MMF, 16-385 MMF)
A5	Trimmer	TC-6	Osc. Trimmer
A6	Trimmer	TC-7	Ant. Trimmer

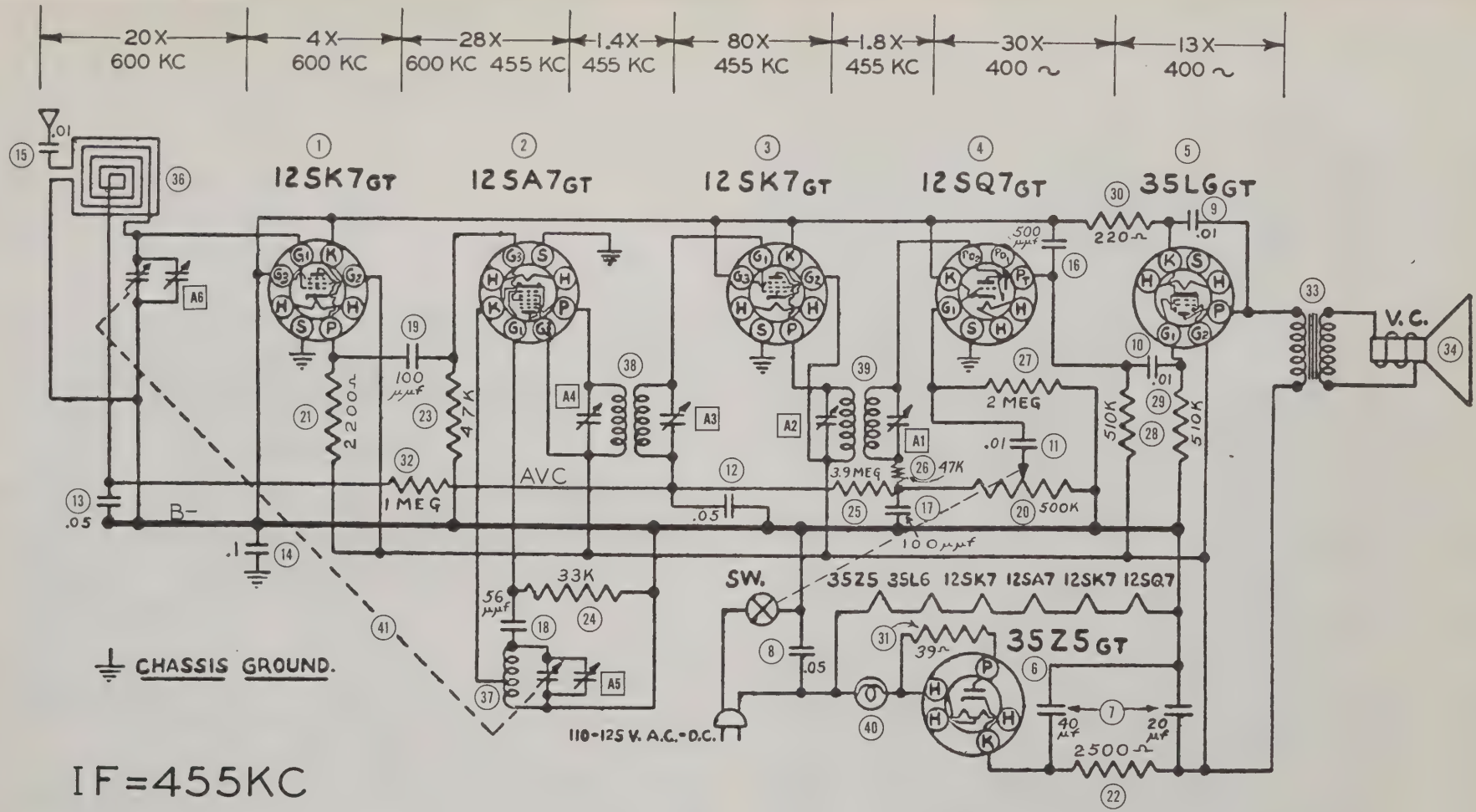


DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



KNIGHT MODEL 6A-195



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	0V.	36 V.AC	0V.	-9 V.DC	0V.	67 V.DC	25V.AC	52V.DC
2	12SA7GT	0V.	25V.AC	67 V.DC	67 V.DC	-3.9V.DC	0V.	13V.AC	0V.
3	12SK7GT	0V.	51V.AC	0V.	-9 V.DC	0V.	67 V.DC	36 V.AC	67 V.DC
4	12SQ7GT	0V.	-1V.DC	0V.	-.4 V.DC	-.4 V.DC	33 V. DC	13V.AC	0V.
5	35L6GT	0V.	87V.AC	121V.DC	67V.DC	0V.	0V.	51V.AC	4.1V.DC
6	35Z5GT	0V.	117V.AC	113V.AC	0V.	112V.AC	0V.	87V.AC	124V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	INF.	33Ω	0Ω	4 MEG.	0Ω	65KΩ	23Ω	66KΩ
2	12SA7GT	0Ω	23Ω	55KΩ	55KΩ	30KΩ	.5Ω	12Ω	37KΩ
3	12SK7GT	INF.	43Ω	INF.	4 MEG.	0Ω	55KΩ	33Ω	55KΩ
4	12SQ7GT	0Ω	1.7 MEG.	0Ω	470KΩ	INF.	580KΩ	12Ω	0Ω
5	35L6GT	INF.	71Ω	55KΩ	55KΩ	480KΩ	0Ω	43Ω	180Ω
6	35Z5GT	INF.	95Ω	93Ω	INF.	130Ω	INF.	71Ω	55KΩ

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

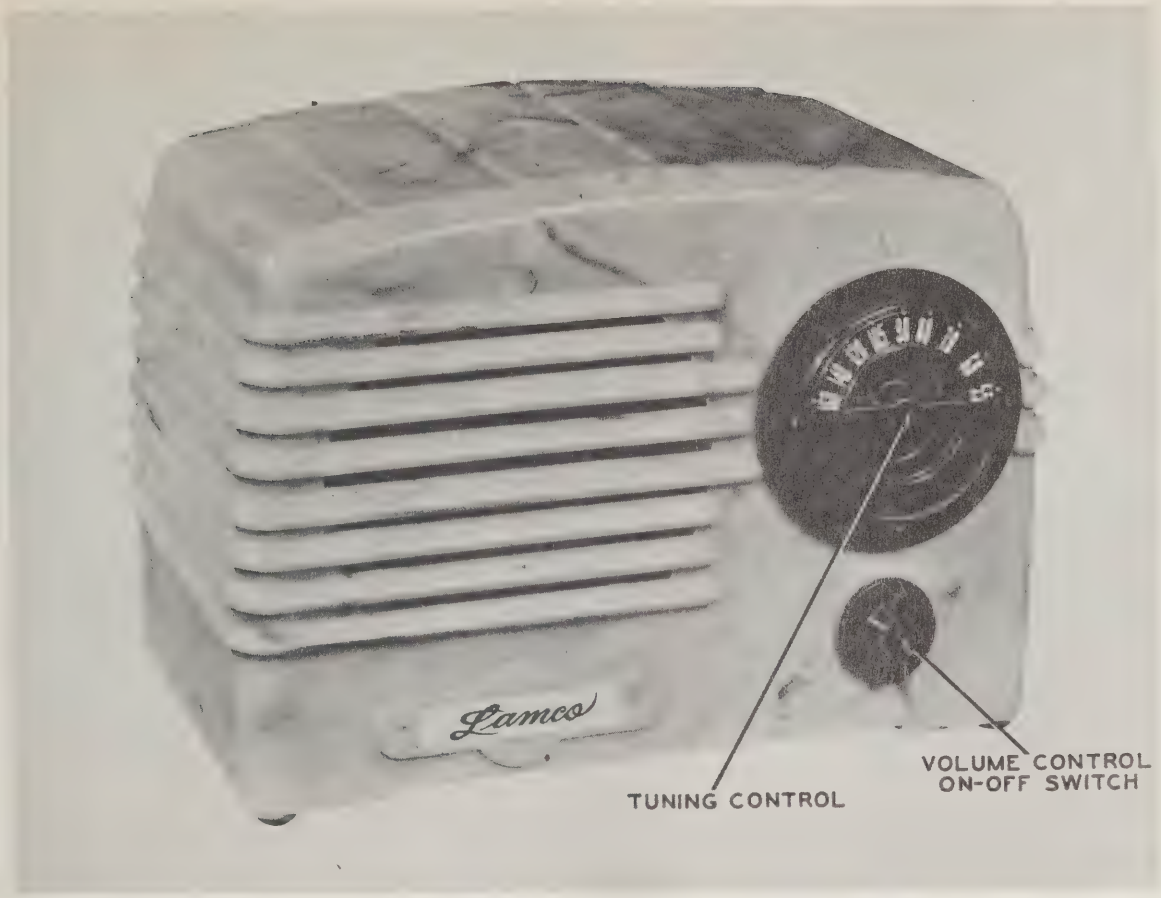
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

476-19

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

LAMCO
MODEL 1000



LAMCO
MODEL 1000

LAMCO MODEL 1000

TRADE NAME	Lamco, Model 1000
MANUFACTURER	La Magna Mfg. Co., Inc., 51 Clinton Place, East Rutherford, N.J.
TYPE SET	AC-DC Operated Superheterodyne Receiver
TUBES (FIVE)	Types, 12BE6 or 14Q7 Converter, 12BA6 or 14A7 IF Amp., 12AT6 or 14B6 Det.-AVC-AF, 50B5 or 50A5 Power Output, 35W4 or 35Y4 Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	530-1650KC RATING .250 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and chassis. Volume control should be at maximum. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001 MFD to reduce hum modulation.
200MMFD	High side to ext. ant. lead. Low side to chassis.	1650KC	"	"	A5	Adjust for maximum output.
200MMFD	"	1400KC	Tune for maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		LAMCO PART No.	STANDARD REPLACEMENT		
1A	Converter	12BE6	12BE6	7CH	
B	"	14Q7	14Q7	8AL	
2A	IF Amp.	12BA6	12BA6	7CC	
B	" "	14A7	14A7	8V	
3A	Det.-AVC-AF	12AT6	12AT6	7BT	
B	" " "	14B6	14B6	8W	
4A	Power Output	50B5	50B5	7BZ	
B	" "	50A5	50A5	6AA	
5A	Rectifier	35W4	35W4	5BQ	
B	"	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	LAMCO PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	
6A	30	150		TA-530	PRSA150-50-30	BRD3515	2N520	M-5030-150	Filter - Red
B	50	150							" - Green
7	.02	400		TC-12	484-02	DT4S2	TP423	S-4-02	Output Plate Bypass
8	.02	400		TC-12	484-02	DT4S2	TP423	S-4-02	Audio Coupling
9	.006	600		TC-26	684-006	DT6D6	TP409	S-6-006	" "
10	.05	200		TC-15	484-05	DT4S5	TP426	S-4-05	AVC Filter
11	.006	600		TC-26	684-006	DT6D6	TP409	S-6-006	Ant. Isolation
12	.05	200		TC-15	484-05	DT4S5	TP426	S-4-05	Line Filter
13	250	500		1FM-325	1468-00025	5W5T25	MC240	MO.5-325	Audio Plate Bypass
14	250	500		1FM-325	1468-00025	5W5T25	MC240	MO.5-325	IF Bypass Vol. Cont.
15	50	500		1FM-45	1468-00005	5W5Q5	MC225	MO.5-45	Osc. Grid Capacitor

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	LAMCO PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
16A	500KΩ	1		MR48	D13-133	M-60-Z	Volume Control-See Note
B	Shaft			Not Req.	A	Not Req.	Attach to 16A per instructions
C	Switch			M26	41	SW-A	" " " " "

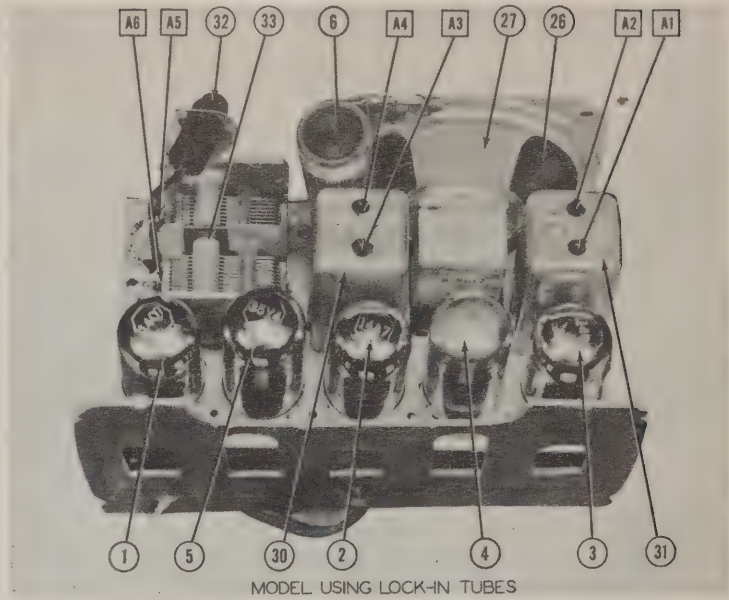
Note-Some models use 1 Meg. control. Replacement same as above.

RESISTORS

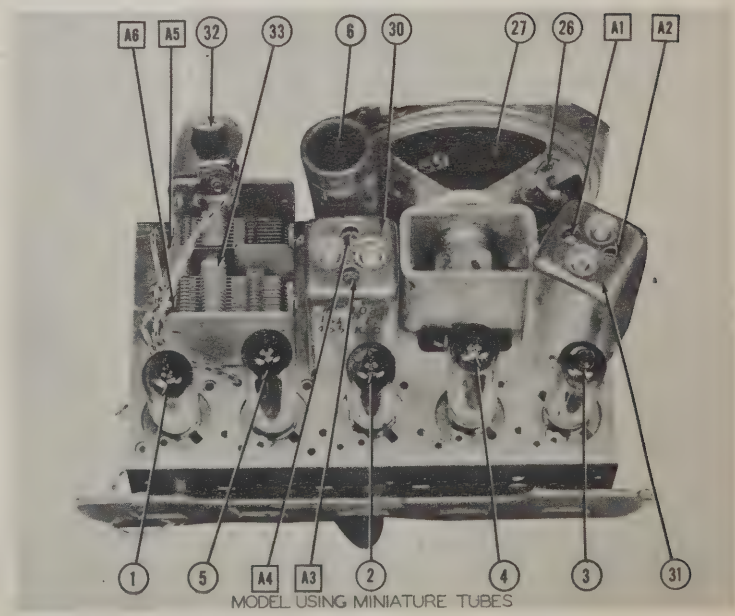
ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	LAMCO PART No.	IRC PART No.	
17	21KΩ	½		BTS-22K	Red-Br.-Or. Oscillator Grid
18	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. AVC Network-See Note 1
19	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
20	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AF Grid
21	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. AF Plate Load
22	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
23	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode-See Note 2
24	1200Ω	2		BT-2-1200	Br.-Red-Red-Filter

Note 1-Not used in all models.
Note 2-Models using Lock-In tubes use 120Ω in this application.

CHASSIS—TOP VIEW



MODEL USING LOCK-IN TUBES



MODEL USING MINIATURE TUBES

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		LAMCO PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
25	2300Ω	3.3Ω	220Ω	.6Ω		A-3876	T22S45		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			LAMCO PART No.	JENSEN PART No.		
	FIELD	VC IMP.				
26	PM	3.3Ω		ST-113* Mod. P4-X		*This replacement only for models using minature tubes. No replacement available for models using lock-in tubes.
	CONE DIA.	VC DIA.				
27	4"	1/2"	NOT READILY	REPLACEABLE-USE COMPLETE SPEAKER UNIT.		

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	LAMCO PART No.	MEISSNER PART No.	
28	Ant. Coil	39Ω	5.5Ω		14-1026	
29	Osc. Coil		6.5Ω		14-1040	
30	Input IF	16Ω	16Ω	S103	16-6658	
31	Output IF	14Ω	14Ω	S104	16-6660	

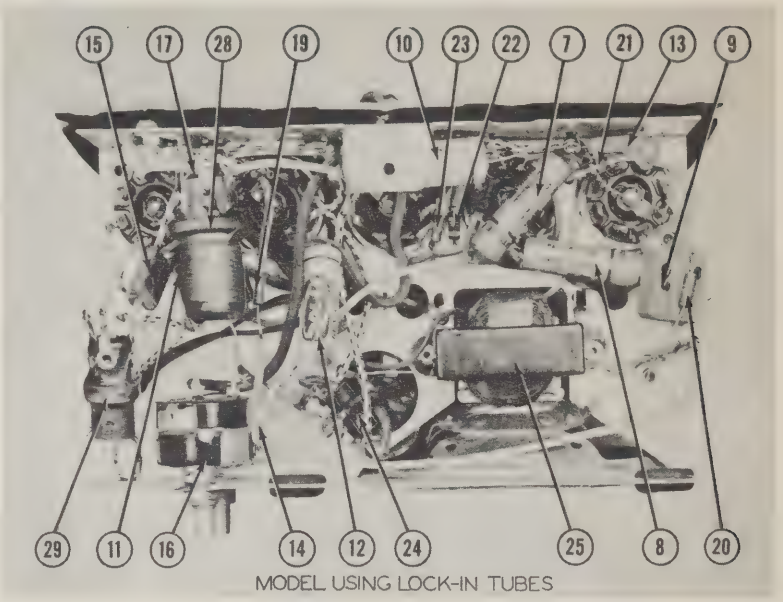
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					LAMCO PART No.		
32	Bayonet	7.5	0.20	White			Type 51

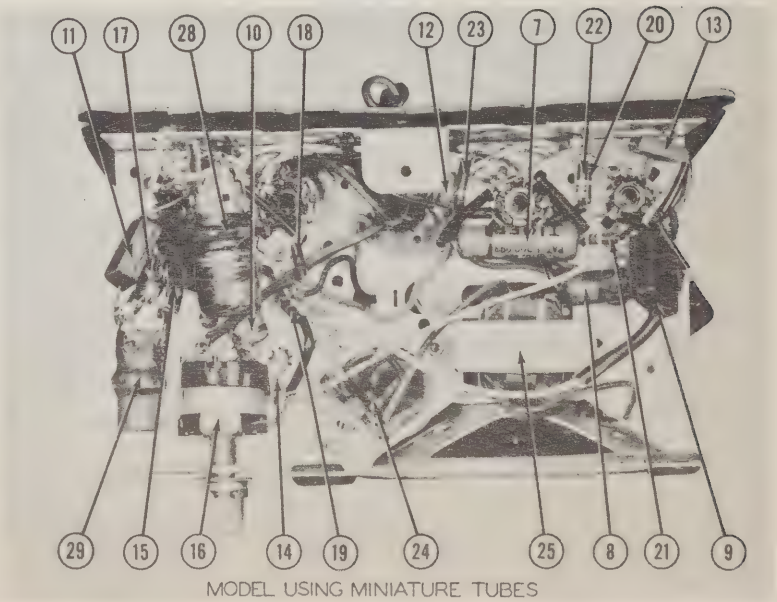
MISCELLANEOUS

ITEM No.	PART NAME	LAMCO PART No.	NOTES
33	2 Gang Var. Cap		(15-424 MMF, 22-181MMF)

CHASSIS—BOTTOM VIEW

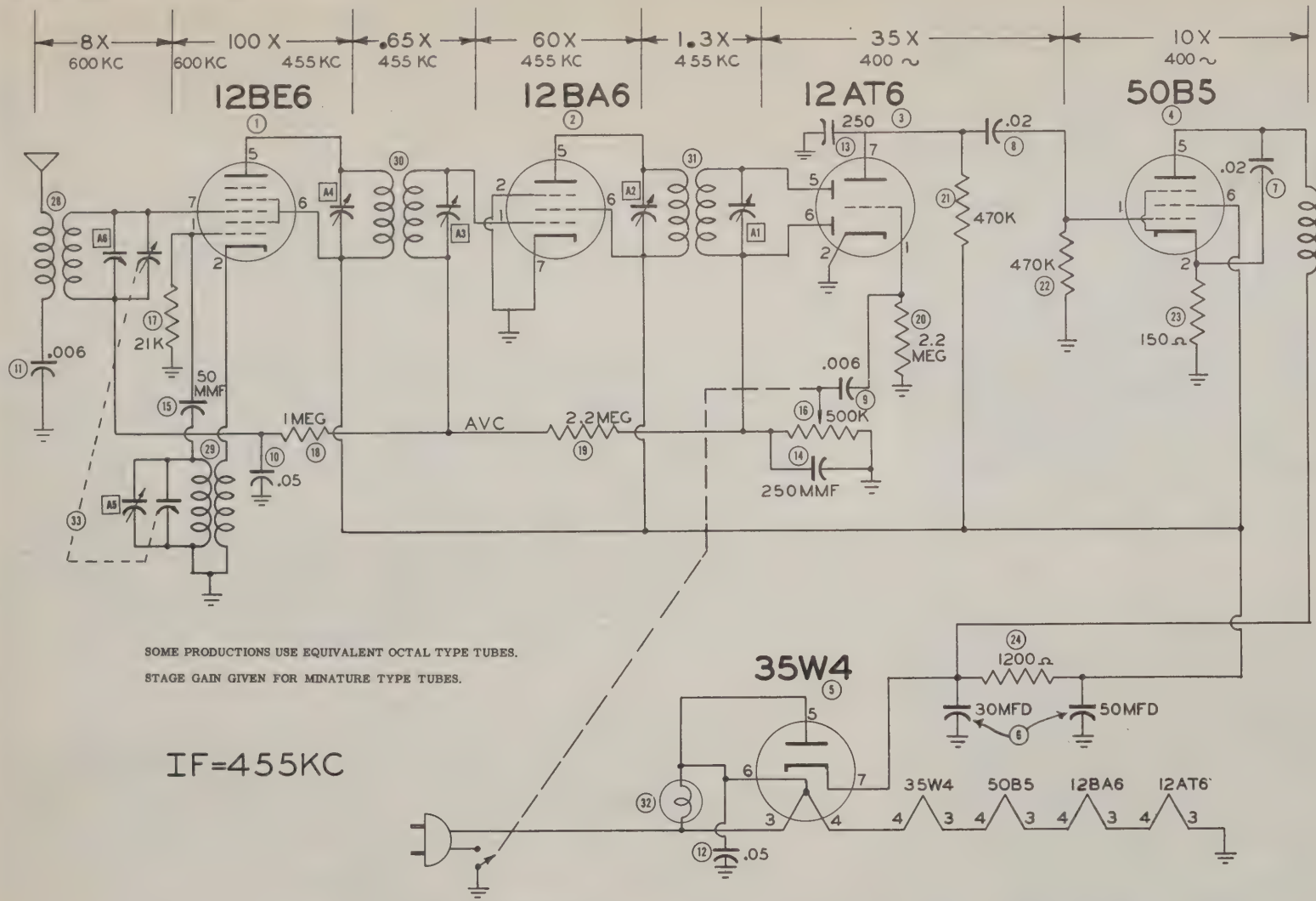


MODEL USING LOCK-IN TUBES



MODEL USING MINIATURE TUBES

LAMCO MODEL 1000



SOME PRODUCTIONS USE EQUIVALENT OCTAL TYPE TUBES.

STAGE GAIN GIVEN FOR MINATURE TYPE TUBES.

IF=455KC

Pin No.	14Q7 Volt.	14Q7 Res	14A7 Volt	14A7 Res.
1	36VAC	32Ω	25VAC	24Ω
2	90V.DC	45 KΩ	90V.DC	45KΩ
3	90V.DC	45KΩ	90V.DC	45KΩ
4	-6V.DC	20KΩ	OV.	0Ω
5	OV.	0Ω	OV.	0Ω
6	OV.	3.6MEG	-.2V.DC	2.6MEG
7	OV.	.5Ω	OV.	0Ω
8	25VAC	24Ω	13VAC	13Ω

Pin No.	14B6 Volt.	14B6 Res	50A5 Volt	50A5 Res.
1	13VAC	13Ω	85VAC	80Ω
2	45V.DC	520KΩ	110V.DC	45KΩ
3	-4V.DC	2MEG	87V.DC	45KΩ
4	OV.	0Ω	OV.	INF.
5	-.6V.DC	450KΩ	-.6V.DC	450KΩ
6	-.6V.DC	450KΩ	OV.	450KΩ
7	OV.	0Ω	5.7V.DC	120Ω
8	OV.	0Ω	36VAC	32Ω

Pin No.	35Y4 Volt.	35Y4 Res
1	117VAC	105Ω
2	113VAC	100Ω
3	OV.	INF.
4	113VAC	100Ω
5	-.2V.DC	2.6MEG
6	OV.	INF.
7	118V.DC	45KΩ
8	85VAC	80Ω

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	-6.8VDC	OV.	13VAC	26VAC	90V.DC	90V.DC	-1VDC
2	12BA6	-.5VDC	OV.	26VAC	37VAC	90V.DC	90V.DC	OV.
3	12AT6	-6VDC	OV.	OV.	13VAC	-4VDC	-4V.DC	45V.DC
4	50B5	OV.	5.8V.DC	37VAC	85VAC	130V.DC	90V.DC	OV.
5	35W4	OV.	OV.	85VAC	117VAC	113VAC	113VAC	130V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	20KΩ	.5Ω	12Ω	25Ω	65KΩ	65KΩ	4MEG.
2	12BA6	3MEG.	0Ω	25Ω	36Ω	65KΩ	65KΩ	0Ω
3	12AT6	1.8MEG.	0Ω	0Ω	12Ω	800KΩ	800KΩ	400KΩ
4	50B5	400KΩ	150Ω	36Ω	80Ω	65KΩ	65KΩ	400KΩ
5	35W4	INF.	INF.	80Ω	105Ω	100Ω	100Ω	65KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

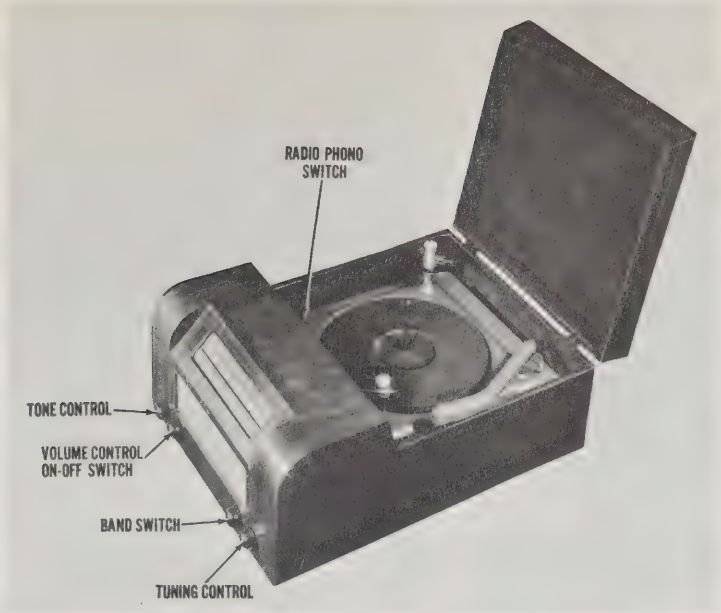
476-20

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

LAFAYETTE
MODELS J62, J62C



LAFAYETTE MODEL J62C

TRADE NAME	LaFayette, Model J62 (Table Model), J62C (Radio-Phono Model)
SUPPLIER	Radio Wire Television, Inc., 100 Sixth Ave., New York 13, N.Y.
TYPE SET	Model J62-AC-DC Operated Superheterodyne - Self Contained Loop Antenna Model J62C - AC Operated Comb. Phono-Radio Superheterodyne with Loop Antenna
TUBES(SIX)	Types, 14Q7 Converter, 14A7 1st IF Amp., 14A7 2nd IF Amp., 14B6 Det.-AVC-AF, 35A5 Power Output, 35Y4 Rectifier.
POWER SUPPLY	110-120 Volts AC-DC (J62), 110-120 Volts AC (J62C) RATING .260 Amp. @ 117 V AC
TUNING RANGE—BROADCAST 550-1650KC	**SHORT WAVE** 6.0-21.0MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set right edge of pointer saddle 2-7/16" from right edge of dial backplate. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and chassis. Volume control at maximum, position. Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to Pin 6 of 14Q7. Low side to chassis.	455KC	BC (counter-clockwise)	Tuning capacitor (fully open)	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
200 MMF.	High side to ext. ant. Low side to chassis.	1650KC	BC	"	"	A5	Adjust for maximum output
200 MMF.	"	1500KC	"	Tune for maximum output.	"	A6	" " " "
200 MMF.	"	600KC	"	"	"	A7	Rock variable and adjust for maximum output. Repeat last three steps until no further increase can be obtained.
400Ω	"	21.0MC	SW (clockwise)	Tuning capacitor (fully open)	"	A8	Adjust for maximum output.
400Ω	"	18.5MC	"	Tune for maximum output.	"	A9	Rock variable and adjust for maximum output.

DISASSEMBLY INSTRUCTIONS (MODEL J62C)

1. Loosen set screws and remove control knobs from front of cabinet.
2. Remove three chassis mounting bolts from bottom of cabinet.
3. Remove four wood screws holding changer mounting board. Lift up changer.
4. Loosen set screw on radio-phono switch control knob. Remove knob.
5. Remove nut mounting radio-phono switch. Remove switch.
6. Remove chassis from cabinet.
7. Unsolder terminal strip from changer.
8. Unsolder phono-motor leads from terminal strip and phono-radio switch.
9. Unsolder phono-pickup leads from switch and terminal strip.

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PARTS LIST AND DESCRIPTIONS

LAFAYETTE
MODELS J62, J62C

TUBES

ITEM No.	USE	REPLACEMENT DATA: LAFAYETTE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	14Q7	14Q7	8AL	
2	IF Amp.	14A7	14A7	8V	
3	IF Amp.	14A7	14A7	8V	
4	Det.-AVC-AF	14B6	14B6	8W	
5	Power Output	35A5	35A5	6AA	
6	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: LAFAYETTE PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	50	150		TA-530	PRSA150-50-30	BRD3515	2N520	M-5030-150	Filter - Red
B	30	150							" - Blue
8	.05	600		TC-15	684-05	DT6S5	TP415	S-6-05	Output Plate Bypass
9	.005	600		TC-25	684-005	DT6D5	TP408	S-6-005	Tone Compensation
10	.02	400		TC-12	484-02	DT4S2	TP423	S-4-02	Audio Coupling
11	.005	600		TC-25	684-005	DT6D5	TP408	S-6-005	Audio Coupling
12	.05	400		TC-15	484-05	DT4S5	TP426	S-4-05	RF Bypass Pwr. Supp.
13	.05	400		TC-15	484-05	DT4S5	TP426	S-4-05	AVC Filter
14	.02	400		TC-12	484-02	DT4S2	TP423	S-4-02	Line Filter
15	.05	400		TC-12	484-05	DT4S2	TP426	S-4-05	Conv. Screen Bypass
16	.005	600		TC-25	684-005	DT6D5	TP408	S-6-005	Ant. Coupling
17	200	500		1FM-32	1468-0002	5W5T2	MC237	M0.5-32	Audio Plate Bypass
18	200	500		1FM-32	1468-0002	5W5T2	MC237	M0.5-32	IF Bypass Vol. Cont.
19	200	500		1FM-32	1468-0002	5W5T2	MC237	M0.5-32	IF Coupling
20	200	500		1FM-32	1468-0002	5W5T2	MC237	M0.5-32	Osc. Grid Capacitor
21	6000	300		1FM-26	1467-006	1D5D6	MC467	MW.5-26	Fixed Padder
22	6000	300		1FM-26	1467-006	1D5D6	MC467	MW.5-26	" "
23	50	500		1FM-45	1468-00005	5W5Q5	MC225	M0.5-45	Fixed Trimmer
24	50	500		1FM-45	1468-00005	5W5Q5	MC225	M0.5-45	Ant. Pri. Shunt

CONTROLS

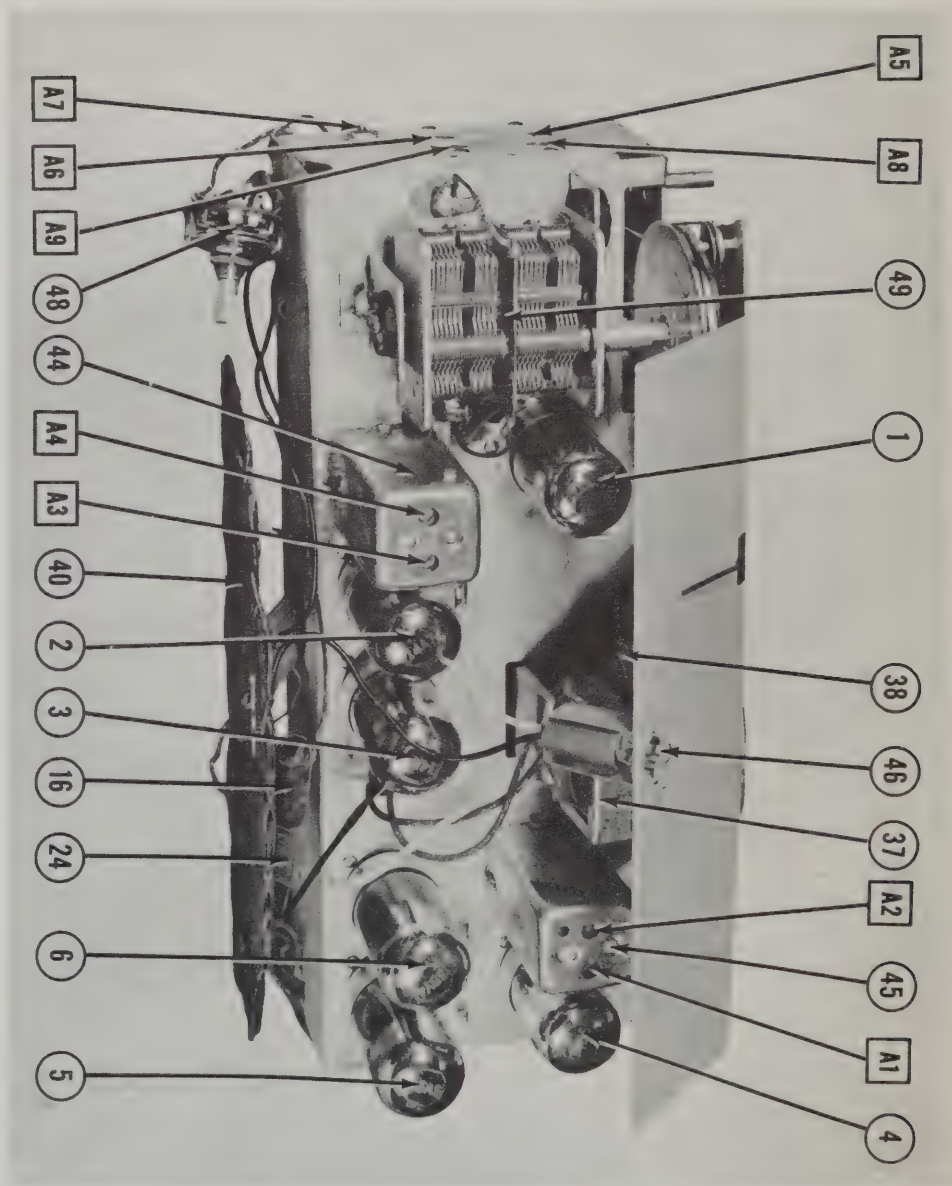
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: LAFAYETTE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
25A	500KΩ	1		MR48	D13-133	M-60-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 25A per instructions
C	Switch			M26	41	SW-A	" " " " "
26A	500KΩ	1		MR48	D13-133	M-60-Z	Tone Control
B	Shaft			Not Req.	A	Not Req.	Attach to 26A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: LAFAYETTE PART No.	IRC PART No.	IDENTIFICATION CODES
27	27KΩ	½		BTS-27K	Red-Vi.-Or. Oscillator Grid
28	470Ω	½		BTS-470	Yl.-Vi.-Br. Converter Screen Dropping
29	1000Ω	½		BTS-1000	Br.-Blk.-Red IF Plate Load
30	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. 2nd IF Grid
31	1.5 Meg.	½		BTS-1.5 Meg.	Br.-Grn.-Grn. AVC Network
32	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
33	220KΩ	½		BTS-220K	Red-Red-Yl. AF Plate Load
34	120Ω	½		BW-½-120	Br.-Red-Br. Output Cathode
35	1200Ω	1		BTA-1200	Br.-Red-Red Filter
36	120Ω	½		BW-½-120	Br.-Red-Br. SW Oscillator Coil Shunt - See Note

Note-Some models use 9200Ω in this application.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		LAFAYETTE PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
37	1850Ω	3.2Ω	140Ω	.7Ω		A-3876*	T22S45*		*Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			LAFAYETTE PART No.	JENSEN PART No.		
	FIELD	VC IMP.				
38	PM	3.2Ω				
	CONE DIA.	VC DIA.				
39	4-3/4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

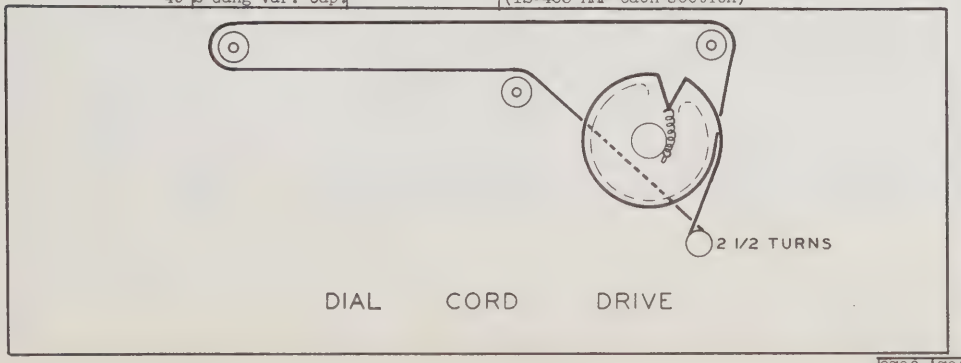
ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	LAFAYETTE PART No.	MEISSNER PART No.
40	Loop Ant.	0Ω	1Ω		
41	SW Ant.Coil	.2Ω	0Ω		14-1044
42	BC Osc. Coil		5.5Ω		14-1040
43	SW Osc. Coil		0Ω		14-1046
44	Input IF	24Ω	16.5Ω	S-103	16-6658
45	Output IF	14.5Ω	14Ω	S-104	16-6660

DIAL LIGHT

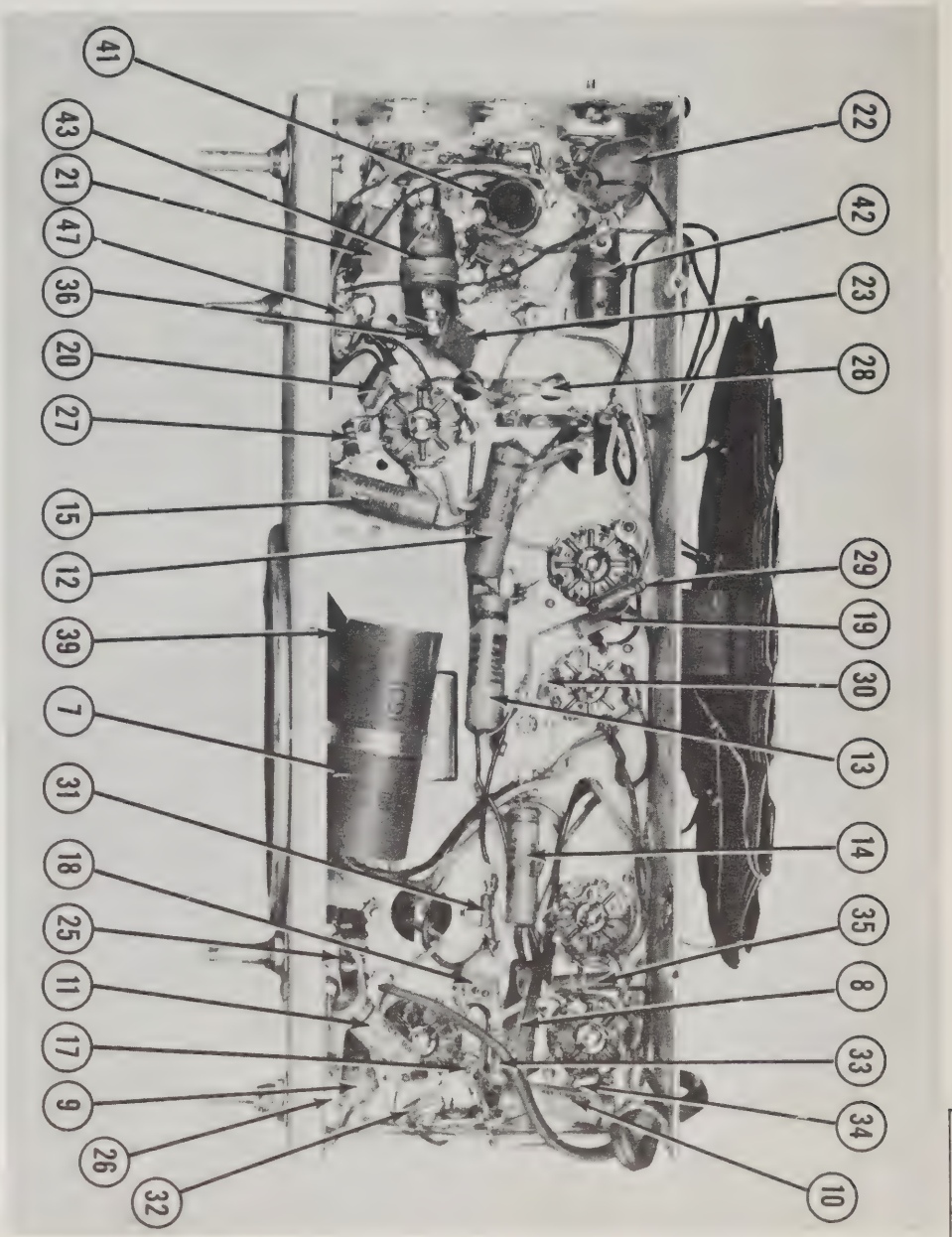
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					LAFAYETTE PART No.		
46	Bayonet	6-8	0.15	Brown			Type 47

MISCELLANEOUS

ITEM No.	PART NAME	LAFAYETTE PART No.	NOTES
47	Bandswitch		
48	Switch		Radio-Phono
49	2 Gang Var. Cap.		(12-465 MMF each section)

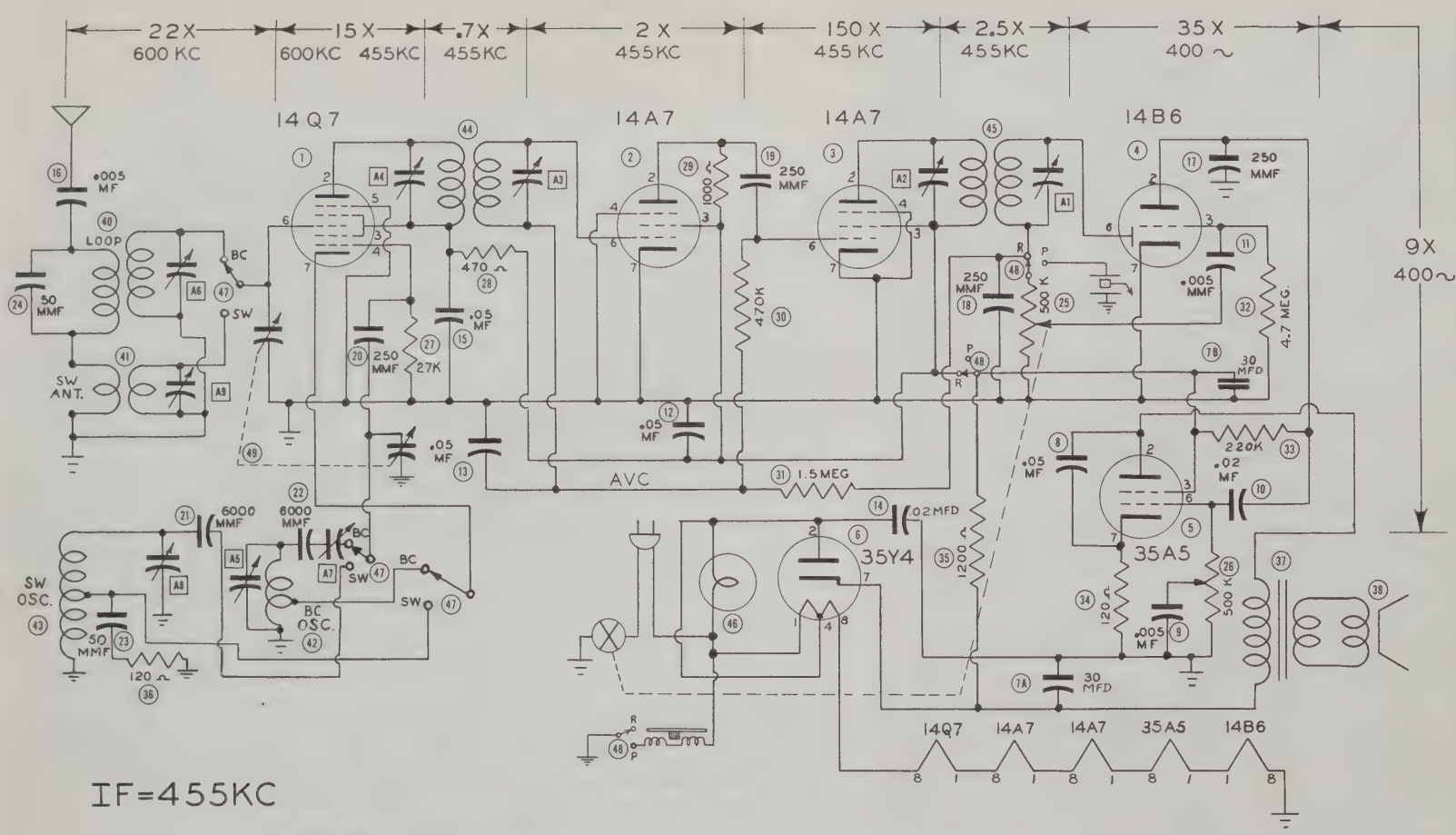


CHASSIS—BOTTOM VIEW



LAFAYETTE
MODELS J62, J62C

LAFAYETTE
MODELS J62, J62C



IF=455KC

Pin No	14Q7 Volt	14Q7 Res	14A7 Volt	14A7 Res
1	74V.AC	67Ω	60V.AC	54Ω
2	76V.DC	65KΩ	72V.DC	65KΩ
3	76V.DC	65KΩ	82V.DC	65KΩ
4	-62V.DC	25KΩ	0V.	0Ω
5	0V.	0Ω	0V.	0Ω
6	0V.	1.9MEG.	0V.	1.9MEG.
7	0V.	.5Ω	0V.	0Ω
8	85V.AC	78Ω	74V.AC	67Ω

Pin No	14A7 Volt	14A7 Res	14B6 Volt	14B6 Res
1	47V.AC	41Ω	13V.AC	11Ω
2	82V.DC	65KΩ	57V.DC	300KΩ
3	82V.DC	65KΩ	-6V.DC	4.5MEG.
4	0V.	0Ω	0V.	0Ω
5	0V.	0Ω	-6V.DC	400KΩ
6	-2V.DC	2.4MEG.	0V.	0Ω
7	0V.	0Ω	0V.	0Ω
8	60V.AC	54Ω	0V.	0Ω

Pin No	35A5 Volt	35A5 Res	35Y5 Volt	35Y5 Res
1	13V.AC	11Ω	117V.AC	100Ω
2	118V.DC	65KΩ	113V.AC	97Ω
3	82V.DC	65KΩ	0V.	INF.
4	0V.	INF.	113V.AC	97Ω
5	0V.	INF.	0V.	INF.
6	0V.	440KΩ	0V.	INF.
7	4.6V.DC	110Ω	122V.DC	65KΩ
8	47V.AC	41Ω	85V.AC	78Ω

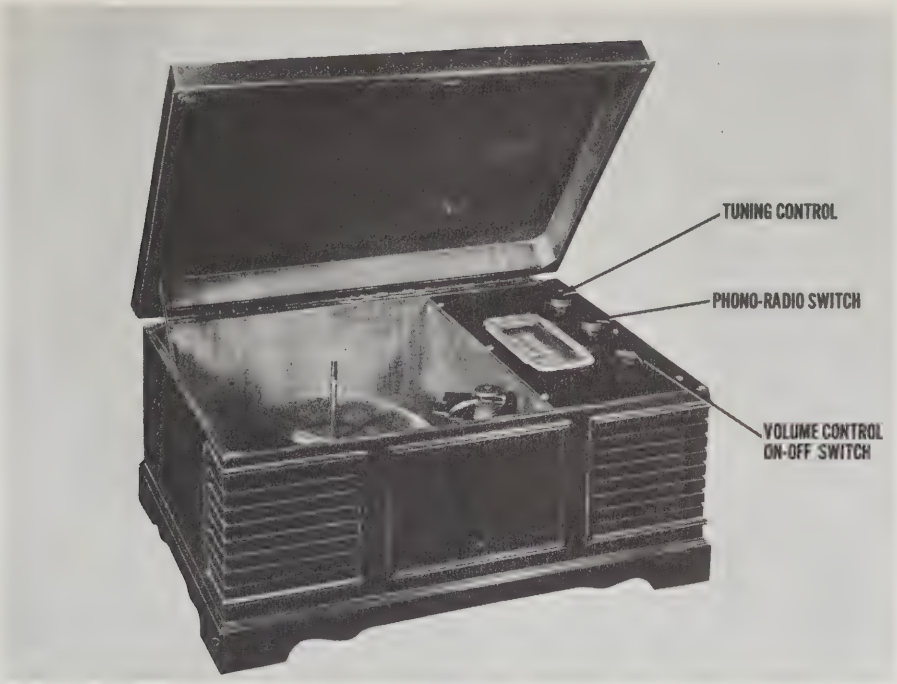
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

476-21

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



LEARADIO MODEL 6617PC

TRADE NAME	Learadio, Model 6617 PC
MANUFACTURER	Lear, Inc., Home Radio Div., 110 Ionia Ave., N.W., Grand Rapids 2, Michigan
TYPE SET	AC Operated Automatic Phono-Radio Combination Superheterodyne With Loop Antenna
TUBES (SIX)	Types, 12SK7 RF Amp., 12SA7 Converter, 12SF7 IF Amp.-Det.-AVC, 12SK7 IF Amp., 35L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC
TUNING RANGE—BROADCAST	540-1620KC RATING .240 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuner until slugs are out all the way and set pointer to end of dial line at high frequency end of dial. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control at maximum position, output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD.	High side to Pin 8 (grid) 12SA7. Low side to B-.	455KC	Slugs completely out.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001 MFD. to reduce hum modulation.
200MMFD.	High side to ant. lead (blue wire). Low side to B-.	"	"	"	A5	Adjust for minimum output.
200MMFD.	"	1620KC	"	"	A6	Adjust for maximum output.
200MMFD.	"	1500KC	Tune for maximum output.	"	A7	" " " "
200MMFD.	"	600KC	"	"	A8	Rock tuning assembly and adjust for maximum output. Repeat last three steps until no further increase can be obtained.

DISASSEMBLY INSTRUCTIONS

1. Remove three push-on type control knobs from top of cabinet.
2. Remove eight wood screws holding back cover board.
3. Disconnect loop ant. plug from receptacle.
4. Disconnect phono plug from chassis.
5. Remove two wood screws holding loop ant. Remove loop.
6. Remove six screws and washers holding top cover board. Remove board.
7. Remove two screws holding chassis mounting board. Lift out chassis on mounting board.
8. Remove three screws and washers holding speaker. Remove speaker.
9. Remove three bolts holding mounting board to chassis. Remove mounting board from chassis.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: LEARADIO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	12SK7	12SK7	8N	
2	Converter	12SA7	12SA7	8R	
3	IF Amp.-Det.-AVC	12SF7	12SF7	7AZ	
4	AF Amp.	12SK7	12SK7	8N	
5	Power Output	35L6GT	35L6GT	6AD	
6	Rectifier	35Z5GT/G	35Z5GT/G	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: LEARADIO PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	50	150	52326	TA-530	PRSA150-50-30	BRD3515	2N520	M-5030-150	Filter - Red
B	30	150							" - Green
8	.05	400	56628	TC-15	484-05	DT4S5	TP426	S-4-05	Line Filter
9	.05	200	56600	TC-15	484-05	DT4S5	TP426	S-4-05	Phono Shield Isolation
10	.1	400	56631	TC-1	484-.1	DT4P1	TP428	S-4-1	Line Isolation
11	.01	600	56650	TC-11	684-01	DT6S1	TP410	S-6-01	Output Plate Bypass
12	.004	200	56589	TC-24	484-004	DT6D4	TP407	S-6-004	Audio Coupling
13	.1	200	56603	TC-1	484-.1	DT4P1	TP428	S-4-1	Audio Plate Decoup.
14	.02	200	56596	TC-12	484-02	DT4S2	TP423	S-4-02	Feedback
15	.02	200	56596	TC-12	484-02	DT4S2	TP423	S-4-02	Audio Coupling
16	.05	200	56600	TC-15	484-05	DT4S5	TP426	S-4-05	AVC Filter
17	.1	200	56603	TC-1	484-.1	DT4P1	TP428	S-4-1	Conv. Screen Bypass
18	.05	200	56600	TC-15	484-05	DT4S5	TP426	S-4-05	AVC Filter
19	220	500	56059	1FM-32	1468-0002	5W5T2	MC237	MO.5-322	Audio Plate Bypass
20	100	500	56057	1FM-31	1468-0001	5W5T1	MC235	MO.5-31	Osc. Grid Capacitor
21	100	500	56057	1FM-31	1468-0001	5W5T1	MC235	MO.5-31	RF Coupling
22	1000	300		1FM-21	1468-001	1W5U1	MC455	MW.5-21	" "
55	.01	400		TC-11	484-01	DT4S1	TP421	S-4-01	Ext. Ant. Coupling#

#Not used in all models.

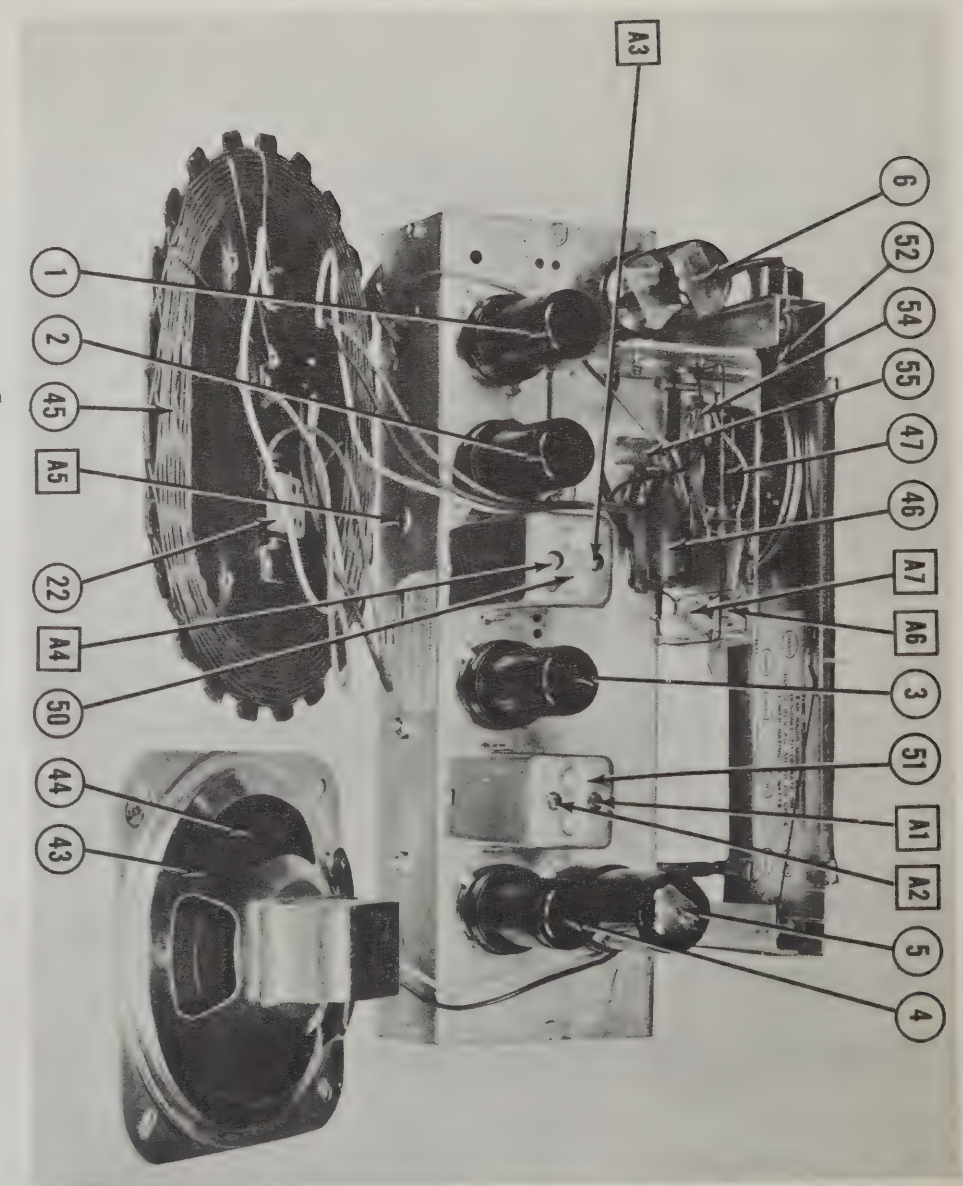
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: LEARADIO PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
23A	500KΩ	1	56340	MK401	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 23A per instructions.
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: LEARADIO PART No.	IRC PART No.	IDENTIFICATION CODES
24	4700Ω	½		BTS-4700	Yl.-Vi.-Red RF Plate Load
25	220KΩ	½	55485	BTS-220K	Red-Red-Yl. Converter Grid
26	15 Meg.	½	55496	BTS-15 Meg.	Br.-Blk.-Blue AVC Network
27	2.2 Meg.	½	55491	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
28	22KΩ	½	55479	BTS-22K	Red-Red-Or. Oscillator Grid
29	470Ω	½	55469	BTS-470	Yl.-Vi.-Br. Converter Screen Dropping
30	2.2 Meg.	½	55491	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
31	6.8 Meg.	½	55494	BTS-6.8 Meg.	Blue-Gray-Grn. AF Grid
32	820Ω	½	55406	BTS-820	Gray-Red-Br. AF Cathode
33	1.2 Meg.	½	61172	BTS-1.2 Meg.	Br.-Red-Grn. AF Screen Dropping
34	100KΩ	½	55483	BTS-100K	Br.-Blk.-Yl. AF Plate Load
35	100KΩ	½	55483	BTS-100K	Br.-Blk.-Yl. AF Plate Decoupling
36	470KΩ	½	55487	BTS-470K	Yl.-Vi.-Yl. Output Grid
37	150Ω	1	55466	BW-1-150	Br.-Grn.-Br. Output Cathode
38	1200Ω	2	55940	BT-2-1200	Br.-Red-Red Filter
39	220KΩ	½	55485	BTS-220K	Red-Red-Yl. Line Isolation
40	15Ω	1	55460	BW-1-15	Br.-Grn.-Blk. Rectifier Ballast
41	150Ω	1	55466	BW-1-150	Br.-Grn.-Br. Pilot Light Shunt

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA LEARADIO PART No.	REPLACEMENT DATA STANCOR PART No.	REPLACEMENT DATA THORDAR'N PART No.	REPLACEMENT DATA	INSTALLATION NOTES
42A	2400Ω	3.9Ω	200Ω tapped @ 9Ω	.6Ω	52456	A-3876*			*Add extra filter to reduce hum level.
B					52531				Alternate transformer.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA LEARADIO PART No.	REPLACEMENT DATA JENSEN PART No.	REPLACEMENT DATA	INSTALLATION NOTES
	FIELD	VC IMP.		ST-108		
43	PM	3.9Ω	53631	Mod. P6-X		
	CONE DIA.	VC DIA.				
44	5-1/4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

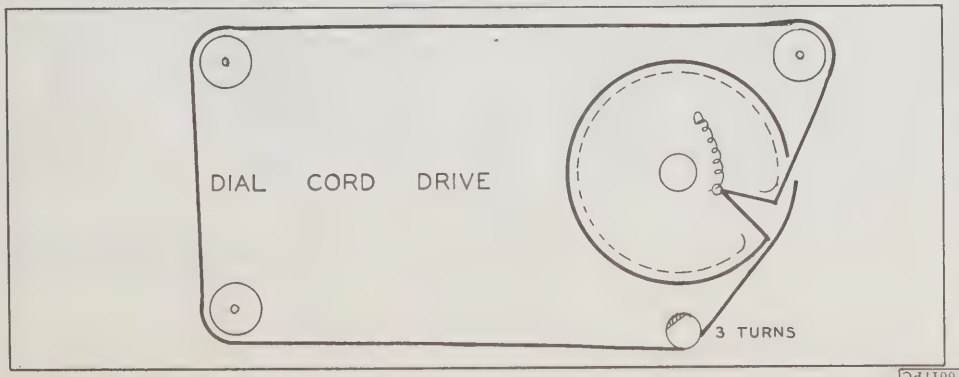
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA LEARADIO PART No.	REPLACEMENT DATA MEISSNER PART No.	
45	Loop Ant.	.1Ω	1Ω	54153		
46	Ant. Shunt Coil	2Ω	8Ω			46 & 47 part of tuner assby. #54284
47	Osc. Shunt Coil		4.6Ω			
48	Osc. Coil	1.3Ω	4.7Ω	54282		
49	Wave Trap		45Ω	40516		
50	Input IF	21Ω	20Ω	53350	16-6658	
51	Output IF	18.5Ω		54990	16-6670	

DIAL LIGHT

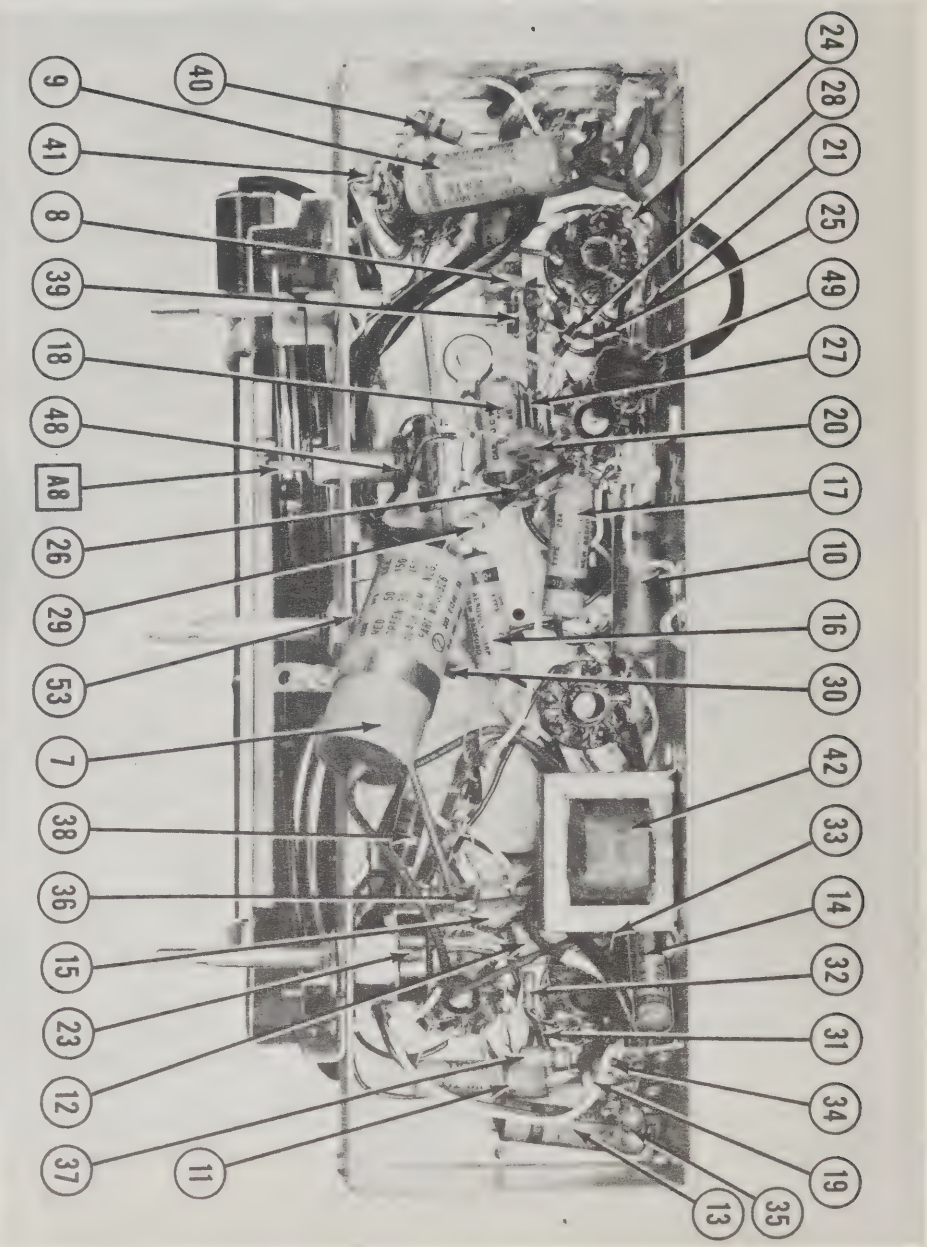
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA LEARADIO PART No.	REPLACEMENT DATA	INSTALLATION NOTES
52	Bayonet	6-8	0.15	Brown	70535		Type 47

MISCELLANEOUS

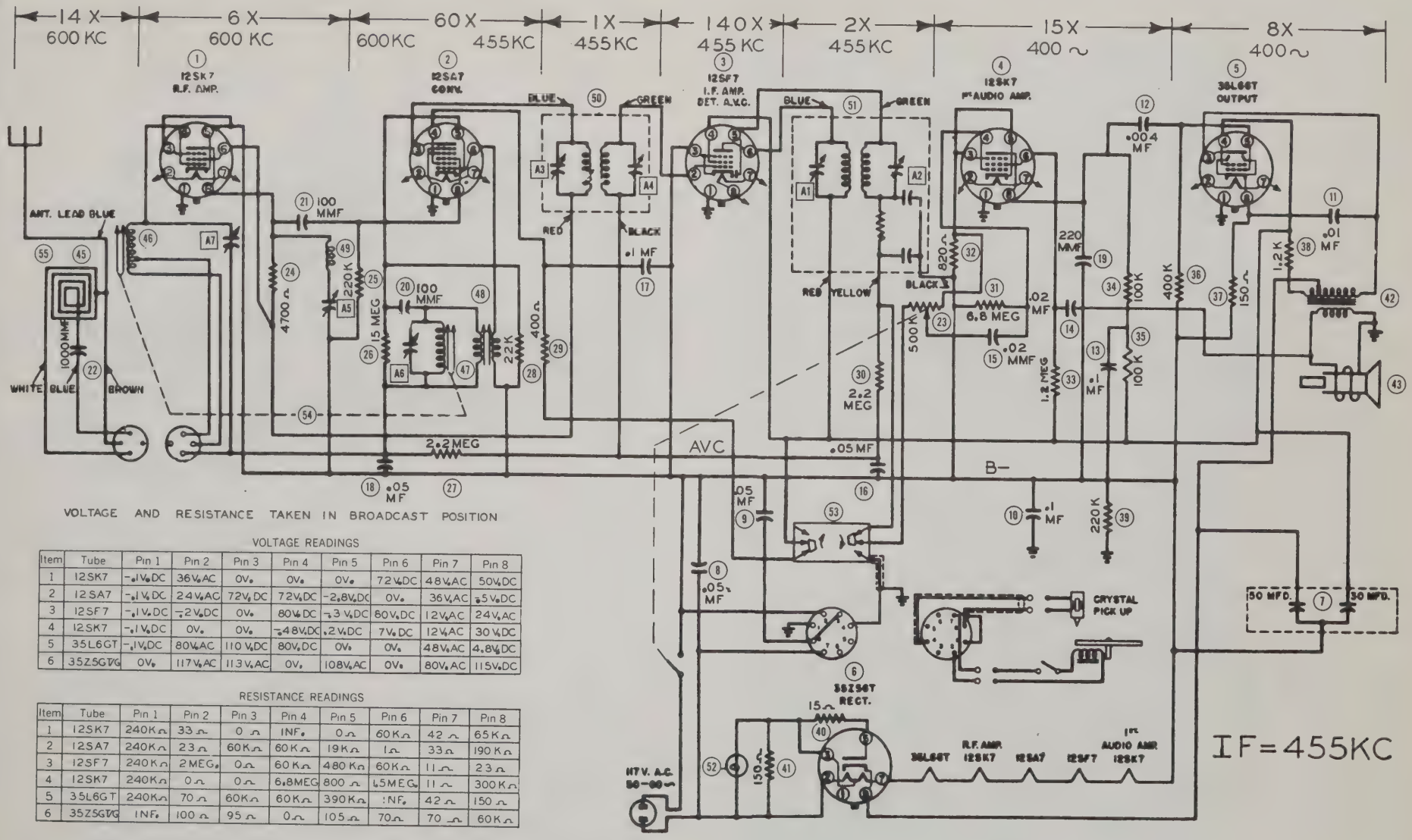
ITEM No.	PART NAME	LEARADIO PART No.	NOTES
53	Switch	54452	Radio-Phono
54	Tuner Assembly	54284	
A5	Trimmer Assby.	52554	Wave Trap



CHASSIS—BOTTOM VIEW



LEARADIO MODEL 6617PC



VOLTAGE AND RESISTANCE TAKEN IN BROADCAST POSITION

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7	-.1V DC	36V AC	0V.	0V.	0V.	72V DC	48V AC	50V DC
2	12SA7	-.1V DC	24V AC	72V DC	72V DC	-2.8V DC	0V.	36V AC	5V DC
3	12SF7	-.1V. DC	-2V DC	0V.	80V DC	-3 V DC	80V DC	12V AC	24V AC
4	12SK7	-.1V DC	0V.	0V.	-48V DC	.2V DC	7V DC	12V AC	30V DC
5	35L6GT	-.1V DC	80V AC	110 V DC	80V DC	0V.	0V.	48V AC	4.8V DC
6	35Z5GT/G	0V.	117V AC	113 V AC	0V.	108V AC	0V.	80V. AC	115V DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7	240KΩ	33Ω	0 Ω	INF.	0Ω	60KΩ	42 Ω	65KΩ
2	12SA7	240KΩ	23Ω	60KΩ	60KΩ	19KΩ	1Ω	33Ω	190KΩ
3	12SF7	240KΩ	2MEG.	0Ω	60KΩ	480KΩ	60KΩ	11Ω	23Ω
4	12SK7	240KΩ	0Ω	0Ω	6.8MEG	800Ω	4.5MEG.	11Ω	300KΩ
5	35L6GT	240KΩ	70Ω	60KΩ	60KΩ	390KΩ	INF.	42Ω	150Ω
6	35Z5GT/G	INF.	100Ω	95Ω	0Ω	105Ω	70Ω	70 Ω	60KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

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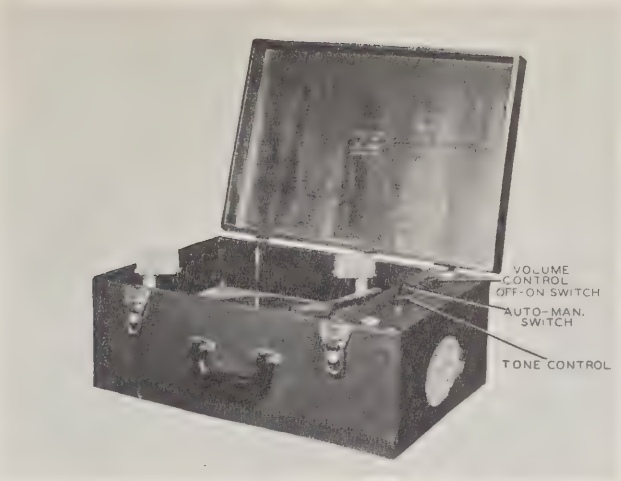
476-22

IF=455KC

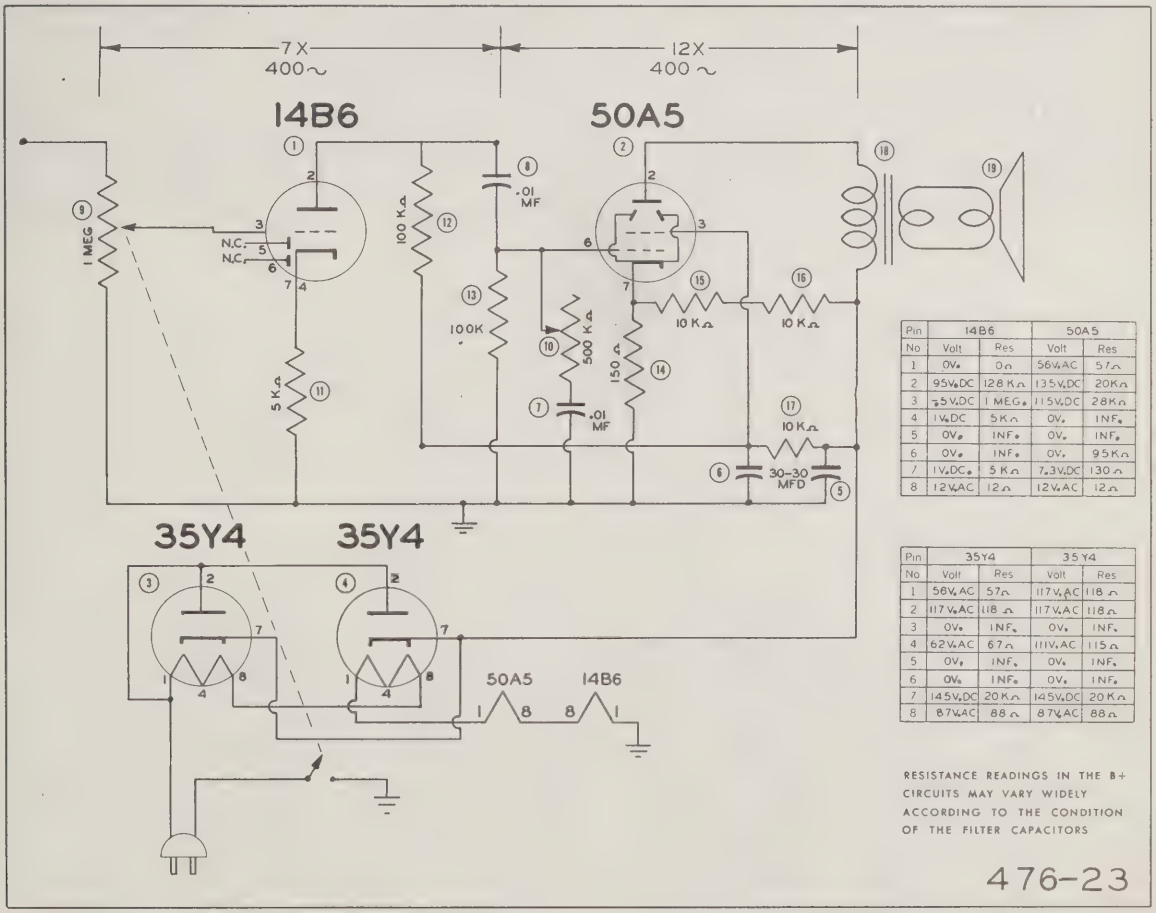
The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



LEE TONE MODEL AP-100

TRADE NAME	Lee Tone, Model AP-100
MANUFACTURER	Boro-Hall Music Co., 3 Myrtl Ave., Brooklyn, N.Y.
TYPE SET	AC Operated Phonograph with 4-Tube Amplifier & Speaker
TUBES (FOUR)	Types, 14B6 Audio Amp., 50A5 Power Output, (2) 35Y4 Rectifier.
POWER SUPPLY	110-120 Volts AC RATING .240 Amp. @ 117 Volts AC



Pin No	14B6 Volt	14B6 Res	50A5 Volt	50A5 Res
1	0V.	0Ω	56V.AC	57Ω
2	95V.DC	128 KΩ	135V.DC	20KΩ
3	75V.DC	1 MEG.	115V.DC	28KΩ
4	1V.DC	5KΩ	0V.	INF.
5	0V.	INF.	0V.	INF.
6	0V.	INF.	0V.	95KΩ
7	1V.DC.	5 KΩ	7.3V.DC	130Ω
8	12V.AC	12Ω	12V.AC	12Ω

Pin No	35Y4 Volt	35Y4 Res	35Y4 Volt	35Y4 Res
1	56V.AC	57Ω	117V.AC	118Ω
2	117V.AC	118Ω	117V.AC	118Ω
3	0V.	INF.	0V.	INF.
4	62V.AC	67Ω	111V.AC	115Ω
5	0V.	INF.	0V.	INF.
6	0V.	INF.	0V.	INF.
7	145V.DC	20KΩ	145V.DC	20KΩ
8	87V.AC	88Ω	87V.AC	88Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

476-23

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: LEE TONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Audio Amp.	14B6	14B6	8W	
2	Power Output	50A5	50A5	6AA	
3	Rectifier	35Y4	35Y4	5AL	
4	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: LEE TONE PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
5	30	150		UT-301	PRS150-30	BR3015	TC47	M-30-150	Filter
6	30	150		UT-301	PRS150-30	BR3015	TC47	M-30-150	"
7	.01	600		TC-11	684-01	DT6S1	TP410	S-6-01	Tone Compensation
8	.01	600		TC-11	684-01	DT6S1	TP410	S-6-01	Audio Coupling

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: LEE TONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
9A	1 Meg.	1		MR53	D13-137	M-63-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 9A per instructions.
C	Switch			M26	41	SW-A	" " " " "
10A	500KΩ	1		MR50	D11-133	M-58-S	Tone Control
B	Shaft			Not Req.	A	Not Req.	Attach to 10A per instructions.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: LEE TONE PART No.	IRC PART No.	IDENTIFICATION CODES
11	5000Ω	½		BTS-4700	Grn.-Blk.-Red AF Cathode
12	100KΩ	½		BTS-100K	Br.-Blk.-Yl. AF Plate Load
13	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Output Grid
14	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
15	10KΩ	½		BTS-10K	Br.-Blk.-Or. Bias Bleeder
16	10KΩ	½		BTS-10K	Br.-Blk.-Or. Bias Bleeder
17	10KΩ	½		BTS-10K	Br.-Blk.-Or. Filter

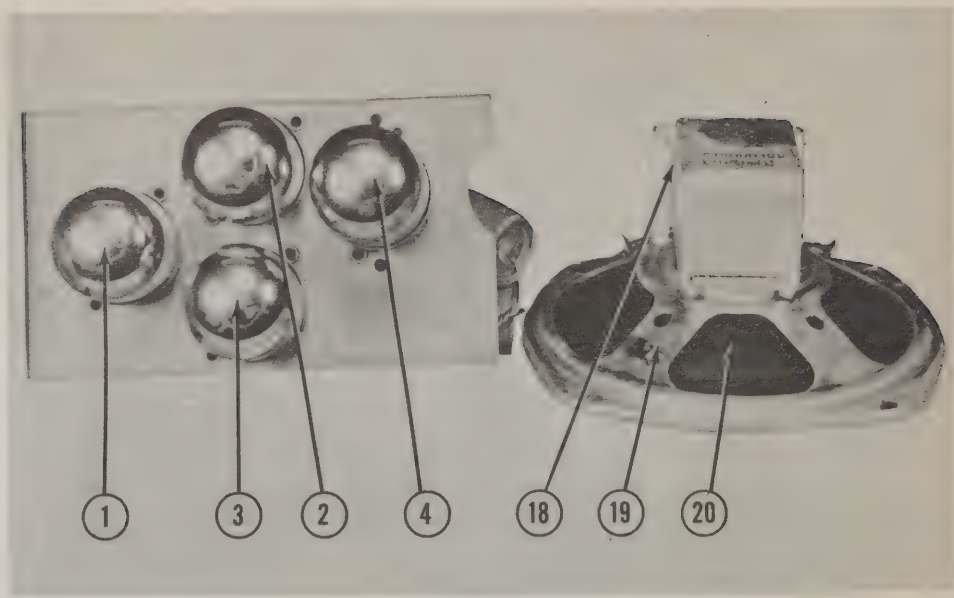
TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: LEE TONE PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
18	2600Ω	3.3Ω	230Ω	.5Ω		A-3876	T22S45		

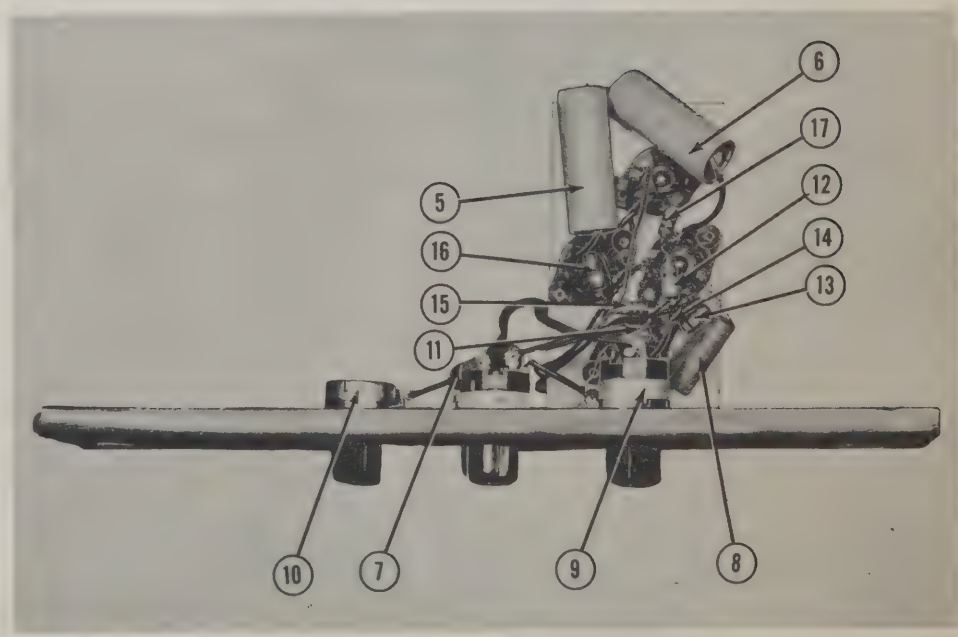
SPEAKER

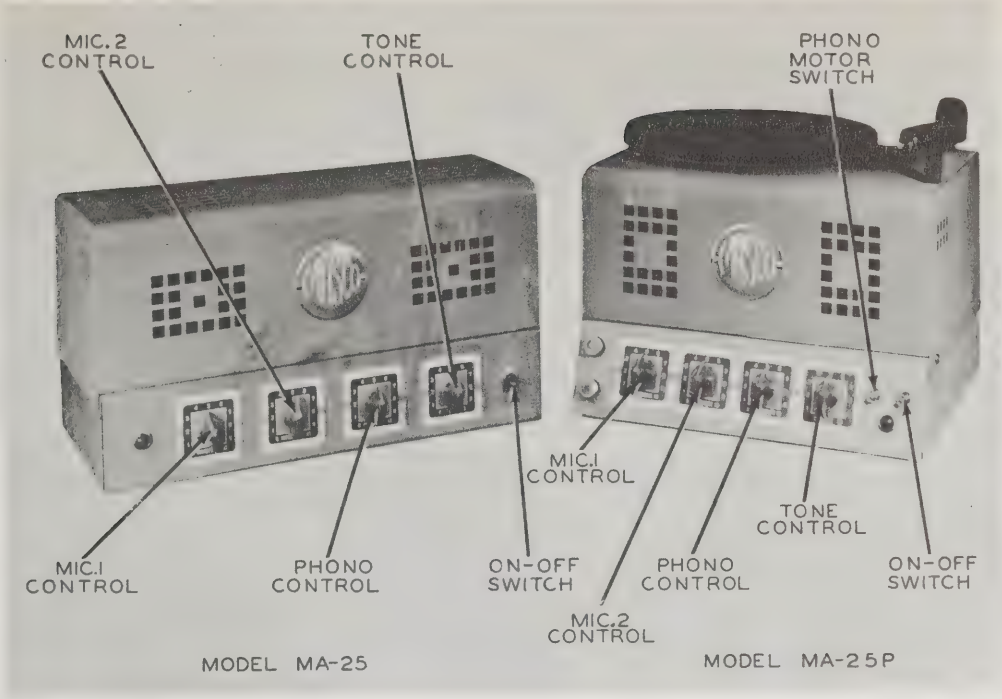
ITEM No.	RATINGS		REPLACEMENT DATA: LEE TONE PART No.	JENSEN PART No.		INSTALLATION NOTES
19	FIELD PM	VC IMP. 3.3Ω		ST-105 Mod. P5-X		
20	CONE DIA. 4-1/2"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW





TRADE NAME	Masco, Models MA-25, MA-25P (With Phonograph)
MANUFACTURER	Mark Simpson Co., 32-28 49th St., Long Island City, N.Y.
TYPE SET	AC Operated 3 Channel Amplifier
TUBES (SEVEN)	Types, 7B4 Mike Amp., 7B4 Mike Amp., 7N7 Mixer-Phono Amp., 7N7 Phase Inverter-AF (2) 6L6GA Power Output, 5U4G Rectifier.
POWER SUPPLY	110-120 Volts RATING 1.35 Amp. @ 117 Volts AC

ALL CONTROLS SET AT MAXIMUM FOR VOLTAGE AND RESISTANCE READINGS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7B4	*26V.DC	135V.DC	190V.DC	0V.	0V.	-.5V.DC	0V.	*26V.DC
2	7B4	*26V.DC	135V.DC	190V.DC	190V.DC	0V.	-.5V.DC	0V.	*26V.DC
3	7N7	*26V.DC	2.5V.DC	67V.DC	0V.	0V.	67V.DC	2.5V.DC	*26V.DC
4	7N7	*26V.DC	4.6V.DC	135V.DC	0V.	0V.	135V.DC	4.6V.DC	*26V.DC
5	6L6GA	0V.	*26V.DC	400V.DC	340V.DC	0V.	0V.	*26V.DC	26V.DC
6	6L6GA	0V.	*26V.DC	400V.DC	340V.DC	0V.	0V.	*26V.DC	26V.DC
7	5U4G	0V.	420V.DC	0V.	360V.AC	0V.	360V.AC	113V.AC	420V.DC

*6.4V.AC BETWEEN FILAMENT PINS

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7B4	180Ω	285KΩ	165KΩ	INF.	INF.	15 MEG.	0Ω	180Ω
2	7B4	180Ω	285KΩ	165KΩ	165KΩ	0Ω	15 MEG.	0Ω	180Ω
3	7N7	180Ω	1000Ω	200KΩ	225KΩ	450KΩ	200KΩ	1000Ω	180Ω
4	7N7	180Ω	1000Ω	200KΩ	10KΩ	660 KΩ	200KΩ	1000Ω	180Ω
5	6L6GA	0Ω	180Ω	160KΩ	160KΩ	100KΩ	INF.	180Ω	180Ω
6	6L6GA	0Ω	180Ω	160KΩ	160KΩ	100KΩ	INF.	180Ω	180Ω
7	5U4G	INF.	150KΩ	INF.	40Ω	INF.	40Ω	INF.	150KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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MASCO
MODELS MA-25, MA-25P

MASCO
MODELS MA-25, MA-25P

PARTS LIST AND DESCRIPTIONS

MASCO MODELS MA-25, MA-25R

TUBES

ITEM No.	USE	REPLACEMENT DATA: MASCO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Mic. Amp.	7B4	7B4	5AC	
2	Mic. Amp.	7B4	7B4	5AC	
3	Mixer-Phono Amp	7N7	7N7	8AC	
4	Phase Inv.-AF	7N7	7N7	8AC	
5	Power Output	6L6GA	6L6GA	7AC	
6	Power Output	6L6GA	6L6GA	7AC	
7	Rectifier	5U4G	5U4G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MASCO PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
8	8	600		AP86	GL-600-8	KR608	HS693	D-8-600	Filter
9	8	600		AP86	GL-600-8	KR608	HS693	D-8-600	"
10A	8	450		UT-88	PRSA450-8-8	BRL8845	2N518	M-2x8-450	" - Red
B	8	450							" - Red
11	8	450		UT-8	PRS450-8	BR845	TC71	M-8-450	"
12	10	70		UT-121	PRS150-12	BR1215	TC42	M-10-150	Cath. Bypass
13	.1	600		TC-1	684-.1	DT6P1	TP418	S-6-1	Audio Coupling
14	.1	600		TC-1	684-.1	DT6P1	TP418	S-6-1	" "
15	.01	400		TC-11	484-01	DT4S1	TP421	S-4-01	Tone Compensation
16	.1	600		TC-1	684-.1	DT6P1	TP418	S-6-1	Audio Coupling
17	.01	400		TC-11	484-01	DT4S1	TP421	S-4-01	" "
18	.01	400		TC-11	484-01	DT4S1	TP421	S-4-01	" "
19	.005	400		TC-25	484-005	DT6D5	TP408	S-6-005	Mic. Coupling
20	.005	400		TC-25	484-005	DT6D5	TP408	S-6-005	" "
21	.1	600		TC-1	684-.1	DT6P1	TP418	S-6-1	Line Bypass

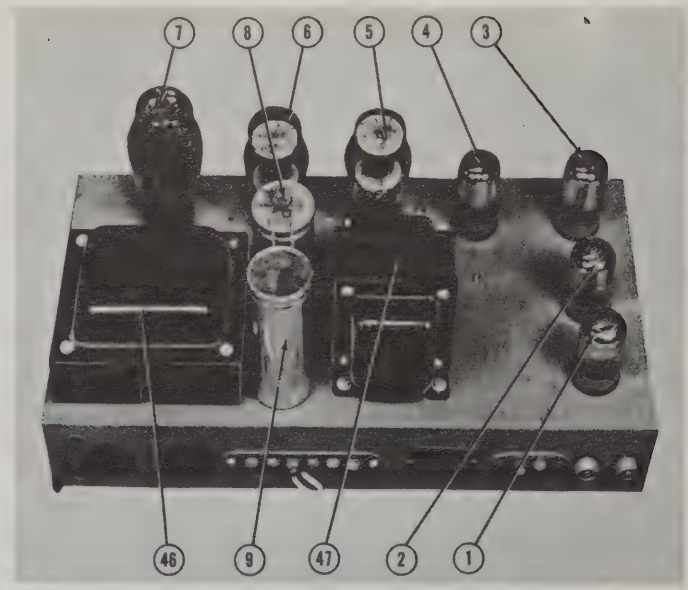
CONTROLS

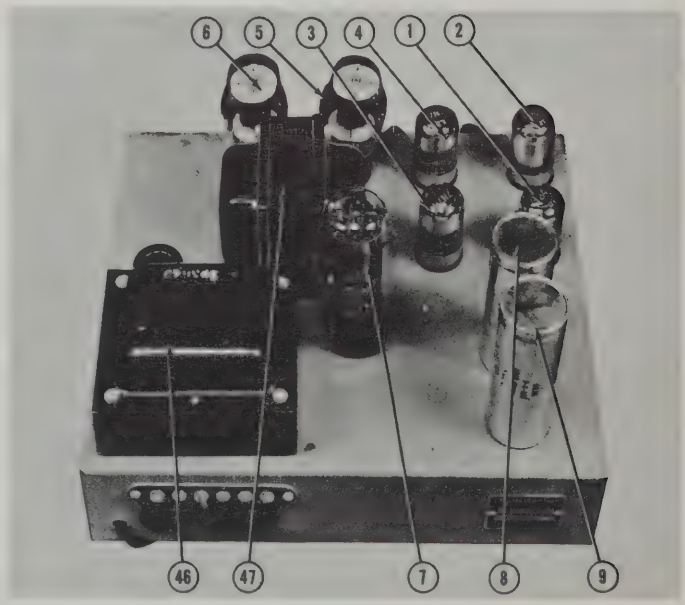
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MASCO PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
22A	500KΩ	1		MR48	D13-133	M-60-Z	Mike 1-Control
B	Shaft			Not Req.	A	Not Req.	Attach to 22A per instructions
23A	500KΩ	1		MR48	D13-133	M-60-Z	Mike 2 Control
B	Shaft			Not Req.	A	Not Req.	Attach to 23A per instructions
24A	500KΩ	1		MR48	D13-133	M-60-Z	Phono Control
B	Shaft			Not Req.	A	Not Req.	Attach to 24A per instructions
25A	500KΩ	1		MR48	D13-133	M-60-Z	Tone Control
B	Shaft			Not Req.	A	Not Req.	Attach to 25A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MASCO PART No.	IRC PART No.	IDENTIFICATION CODES
26	15 Meg.	½		BTS-15 Meg.	Br.-Grn.-Blue Mike 1 Amp. Grid Load
27	15 Meg.	½		BTS-15 Meg.	Br.-Grn.-Blue Mike 2 Amp. Grid Load
28	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Mike 1 Amp. Plate Load
29	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Mike 2 Amp. Plate Load
30	1000Ω	½		BTS-1000	Br.-Blk.-Red AF Mixer Cathode
31	51KΩ	½		BTS-47K	Grn.-Br.-Or. AF and Mixer Plate Load
32	1000Ω	½		BTS-1000	Br.-Blk.-Red Driver Cathode
33	500KΩ	½		BTS-470K	Grn.-Blk.-Yl. Driver Grid Load
34	51KΩ	½		BTS-47K	Grn.-Br.-Or. Driver Plate Load
35	51KΩ	½		BTS-47K	Grn.-Br.-Or. Phase Inverter Plate Load
36	10KΩ	½		BTS-10K	Br.-Blk.-Or. Phase Inverter Grid
37	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Output Grid

CHASSIS—TOP VIEW





PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	MASCO PART No.	IRC PART No.	
38	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Output Grid
39	200Ω	10		AB-200	Output Cathode
40	5000Ω	10		AB-5000	Filter-See Note 2
41	12KΩ	½		BTS-12K	Br.-Red-Or. Filter
42	12KΩ	½		BTS-12K	Br.-Red-Or. Filter
43	3 Meg.	½		BTS-3.3 Meg.	Or.-Blk.-Grn. Feedback
44	10KΩ	10		AB-10K	Bleeder-See Note 1

Note 1- 10KΩ bleeder used only when 2500Ω filter is used.
Note 2- Some models use 2500Ω filter replaced with IRC AB2500.

FILTER CHOKE

ITEM NO.	RATINGS			REPLACEMENT DATA			INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE @ CURRENT 1000~	MASCO PART NO.	STANCOR PART NO.	THORDARSON PART NO.	
45	.134 Amp.	120Ω	8 Henries	C-235	C-2309*		*Drill new mounting holes.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	SEC. 3	MASCO PART No.	STANCOR PART No.	THORDARSON PART No.	
46A	117V AC @ 1.35A	720V CT @ .134A	5.0V AC @ 3.0A	6.3V AC @ 3.7A	A-25	P-6314	T22R07	Used in Model MA-25
B	117V AC @ 1.35A	720V CT @ .134A	5.0V AC @ 3.0A	6.3V AC @ 3.7A	A-35	P-6314	T22R07	Used in Model MA-25P

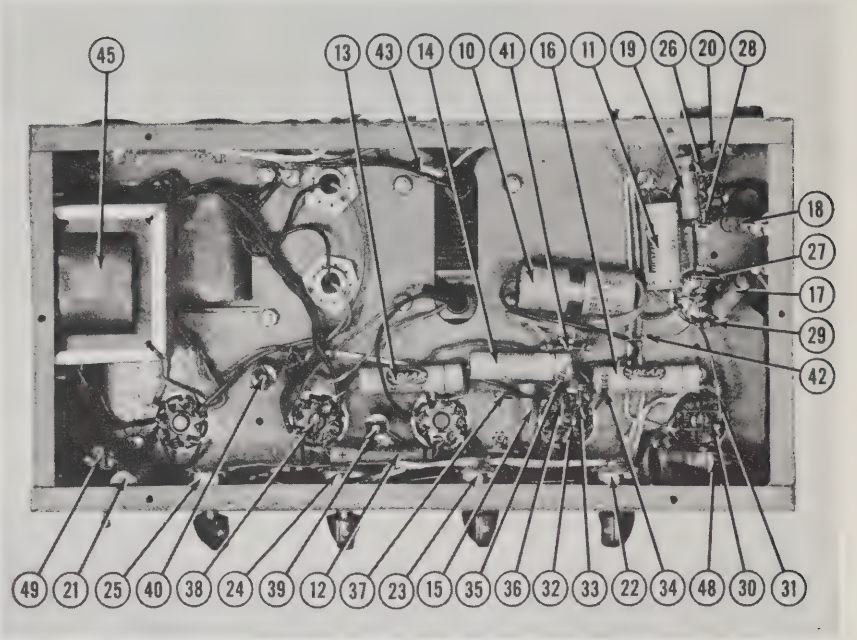
TRANSFORMER (OUTPUT)

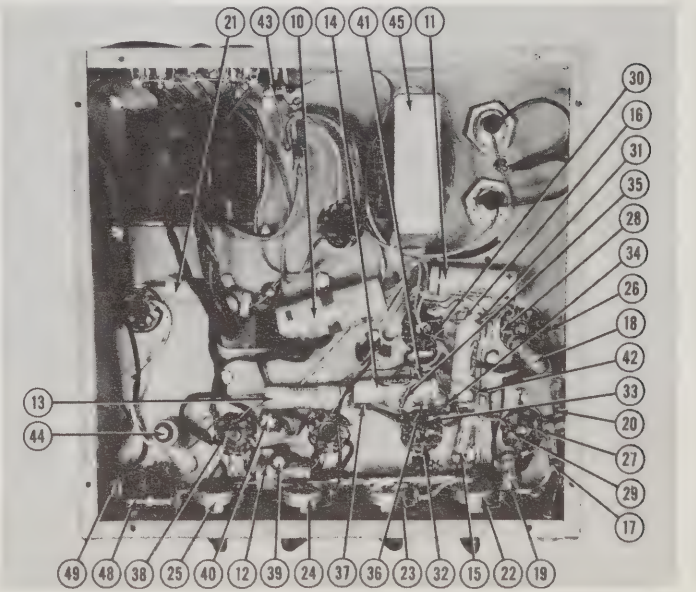
ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MASCO PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
47	10,000 ΩCT	2Ω 4Ω 8Ω 15Ω 500Ω	240Ω CT	.4Ω .5Ω .7Ω .9Ω 21Ω	0-25	A-3311*	T22S64*		*Drill new mounting holes.

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					MASCO PART No.		
48A	Screw	6-8	0.15	Brown			Type 40 (Used in Model MA-25)
B	Bayonet	6-8	0.15	"			Type 47 (" " Model MA-25P)

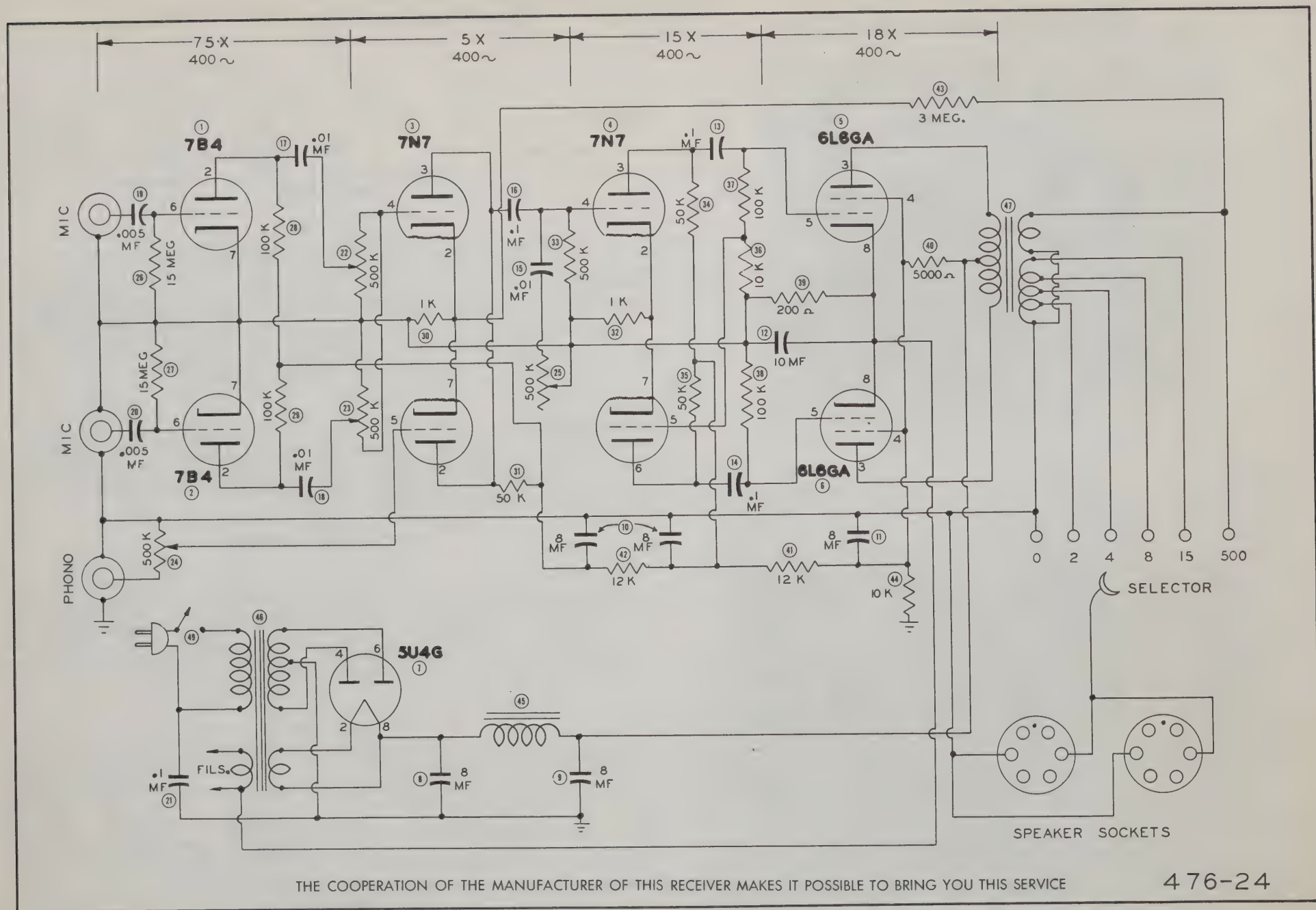
CHASSIS—BOTTOM VIEW





MASCO MODELS
MA-25, MA-25P

MASCO MODELS
MA-25, MA-25P



THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

476-24

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

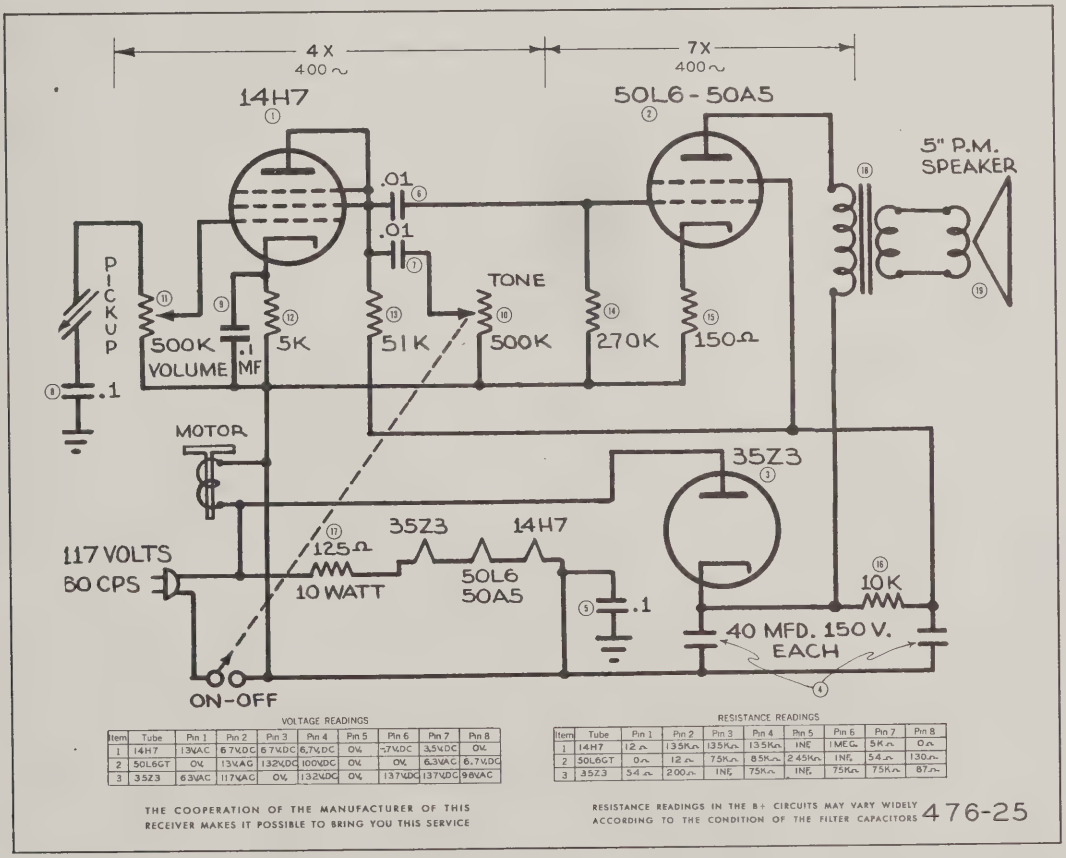
MASCO
MODELS MPA-3, MPT-4

MASCO
MODELS MPA-3, MPT-4

MODEL MPA-3

MODEL MPT-4

TRADE NAME	Masco, Models MPA-3, MPT-4
MANUFACTURER	Mark Simpson Mfg. Co. Inc., 32-28 Forty Ninth St., Long Island City, 3, N.Y.
TYPE SET	AC Operated 3 Tube Amplifier with Speaker
TUBES (THREE)	Types, 14H7 AF Amp., 50L6 Power Output, 35Z3 Rectifier.
POWER SUPPLY	110-120 Volts AC RATING .230 Amps. @ 117V AC



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14H7	13VAC	6.7VDC	6.7VDC	6.7VDC	0V.	-.7VDC	3.5VDC	0V.
2	50L6GT	0V.	13VAG	132VDC	100VDC	0V.	0V.	6.3VAC	6.7VDC
3	35Z3	63VAC	117VAC	0V.	132VDC	0V.	137VDC	137VDC	98VAC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14H7	12Ω	135KΩ	135KΩ	135KΩ	INF.	1MEG.	5KΩ	0Ω
2	50L6GT	0Ω	12Ω	75KΩ	85KΩ	245KΩ	INF.	54Ω	130Ω
3	35Z3	54Ω	200Ω	INF.	75KΩ	INF.	75KΩ	75KΩ	87Ω

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

476-25

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: MASCO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	AF Amp.	14H7	14H7	8V	
2	Power Output	50L6	50L6	7AC	50A5 Alternate
3	Rectifier	35Z3	35Z3	4Z	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MASCO PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
4A	40	150		TA-440	PRSA150-40-40	BRD4415	2N511	DSB-2x40-150	Filter - Red
B	40	150							" - "
5	.1	600		TC-1	684-.1	DT6P1	TP418	S-6-1	Line Isolation
6	.01	400		TC-11	484-01	DT4S1	TP421	S-4-01	Audio Coupling
7	.01	400		TC-11	484-01	DT4S1	TP421	S-4-01	Tone Compensation
8	.1	600		TC-1	684-.1	DT6P1	TP418	S-6-1	Phono Isolation
9	.1	600		TC-1	684-.1	DT6P1	TP418	S-6-1	Cath. Bypass †

†Used in Models using Astatic RL-267 Pickup.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MASCO PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
10A	500KΩ	1		MR48	D13-133	M-60-Z	Tone Control
B	Shaft			Not Req.	A	Not Req.	Attach to 10A per instructions
C	Switch			M26	41	SW-A	" " " " "
11A	500KΩ	11		MR50	D11-133	M-58-S	Volume Control-See Note 1
B	Shaft			Not Req.	A	Not Req.	Attach to 11A per instructions

Note 1-Some models may use a 250KΩ or 1 Meg. Volume Control. Replacement same as above.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MASCO PART No.	IRC PART No.	IDENTIFICATION CODES
12	5000Ω	½		BTS-4700	Grn.-Blk.-Red AF Cathode
13	51KΩ	½		BTS-47K	Grn.-Br.-Or. AF Plate Load
14	270KΩ	½		BTS-270K	Red-Vi.-Yl. Output Grid
15	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
16	10KΩ	½		BTS-10K	Br.-Blk.-Or. Filter
17	125Ω	10		ABA-150	Line Dropping-See Note 2

Note 2-On IRC replacement set slider @ 125Ω from one end.

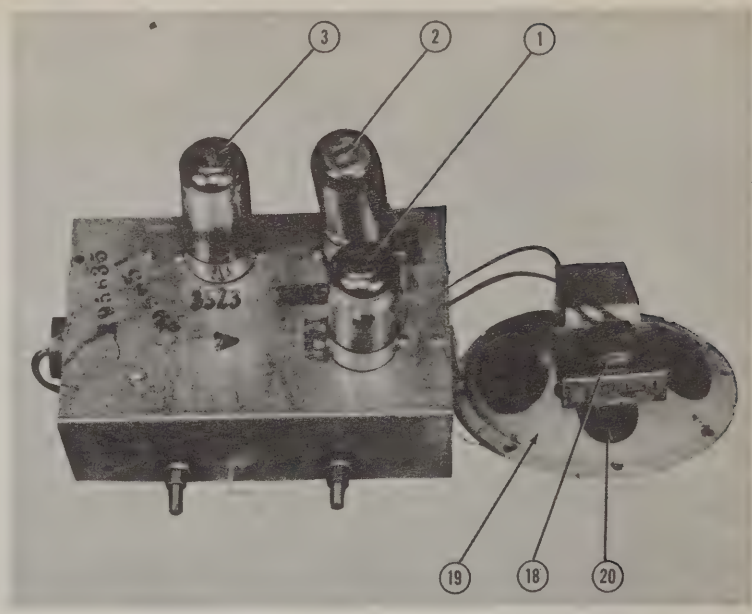
TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: MASCO PART No.	STANCOR PART No.	THORDARSON PART No.		INSTALLATION NOTES
18A	1850Ω	2.9Ω	110Ω	.5Ω		A-3876*	T22S45*		Used in Model MPT-4
B	1600Ω	3.2Ω	130Ω	.45Ω		A-3876*	T22S46*		Used in Model MPA-3
									*Bend mounting tabs down, file out slots and mount on original bracket.

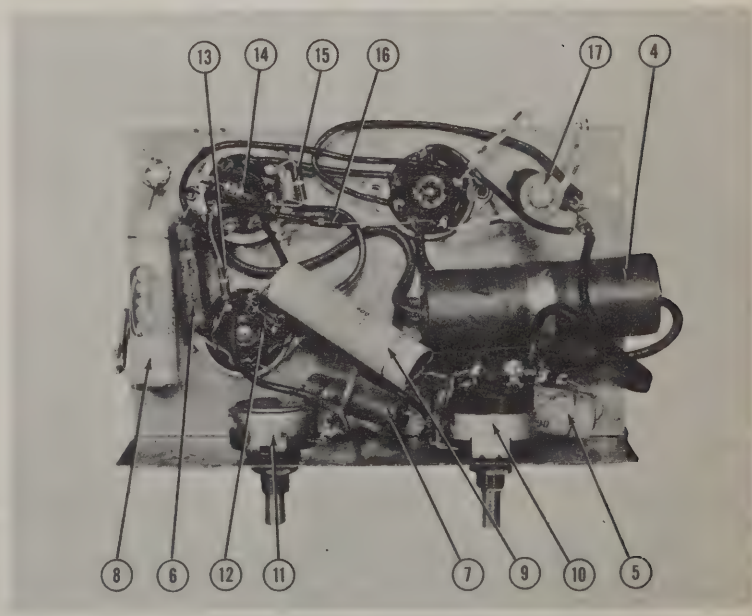
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: MASCO PART No.	JENSEN PART No.		INSTALLATION NOTES.
	FIELD	VC IMP.				
19A	PM	2.9Ω		ST-105 Mod. P5-X		Used in Model MPT-4
B	PM	3.2Ω		ST-107 Mod. P5-V		Used in Model MPA-3
	CONE DIA.	VC DIA.				
20A	4-3/4"	1/2"				
B	4-1/2"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW



MECK
MODEL 6A6-W4

MECK
MODEL 6A6-W4

MECK MODEL 6A6-W4

TRADE NAME	Meck, Model 6A6-W4
MANUFACTURER	John Meck Industries, Plymouth, Indiana
TYPE SET	AC-DC Operated Superheterodyne - Self Contained Loop Antenna
TUBES (SIX)	Types, 12SK7GT RF Amp., 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	530-1700 RATING .265 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap fully closed and set pointer 1-29/32" from extreme left edge of dial backplate. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and chassis. Volume control at maximum position. Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to front stator of tuning cap. Low side to chassis.	455KC	Tuning cap. open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001 MFD to reduce hum modulation.
200MMFD	High side to ext. ant. lug. Low side to ext. grd. lug.	1500KC	7-1/8" from extreme left edge of dial backplate.	"	A5	Adjust for maximum output .
200MMFD	"	1400KC	Tune for maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

MECK MODEL 6A6-W4

TUBES

ITEM No.	USE	REPLACEMENT DATA: MECK PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	12SK7GT	12SK7GT	8N	
2	Converter	12SA7GT	12SA7GT	8AD	
3	IF Amp.	12SK7GT	12SK7GT	8N	
4	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MECK PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	20	150		TA-303	PRSA150-20-20	EZ42215	TN129	DSB-3x20-150	Filter - Yellow
B	20	150							" - Blue
C	20	150			PRS150-20				" - Red
8	.05	400		TC-15	484-05	DT4S5	TP426	S-4-05	Line Filter
9	.05	600		TC-15	684-05	DT6S5	TP415	S-6-05	Tone Compensation
10	.01	400		TC-11	484-01	DT4S1	TP421	S-4_01	Audio Coupling
11	.01	400		TC-11	484-01	DT4S1	TP421	S-4-01	" "
12	.01	400		TC-11	484-01	DT4S1	TP421	S-4-01	RF Cath. Bypass
13	.05	600		TC-15	684-05	DT6S5	TP415	S-6-05	AVC Filter
14	250	500		1FM-325	1468-00025	5W5T25	MC240	M0.5-325	Audio Plate Bypass
15	250	500		1FM-325	1468-00025	5W5T25	MC240	M0.5-325	Tone Compensation
16	250	500		1FM-325	1468-00025	5W5T25	MC240	M0.5-325	IF Bypass Diode
17	50	500		1FM-45	1468-00005	5W5Q5	MC225	M0.5-45	Osc. Grid Capacitor

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MECK PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
18A	1 Meg.	1		MK402	D13-137	AM-63-Z	Volume Control
B	Shaft			Not Req.	E	KSS-3	Attach to 18A per instructions
C	Switch			M26	41	SW-A	" " " "
19A	500KΩ	1		MR48	D13-133	M-60-Z	Tone Control
B	Shaft			Not Req.	A	Not Req.	Attach to 19A per instructions
20A	500KΩ	1		MR48	D13-133	M-60-Z	Gain Control
B	Shaft			Not Req.	A	Not Req.	Attach to 20A per instructions

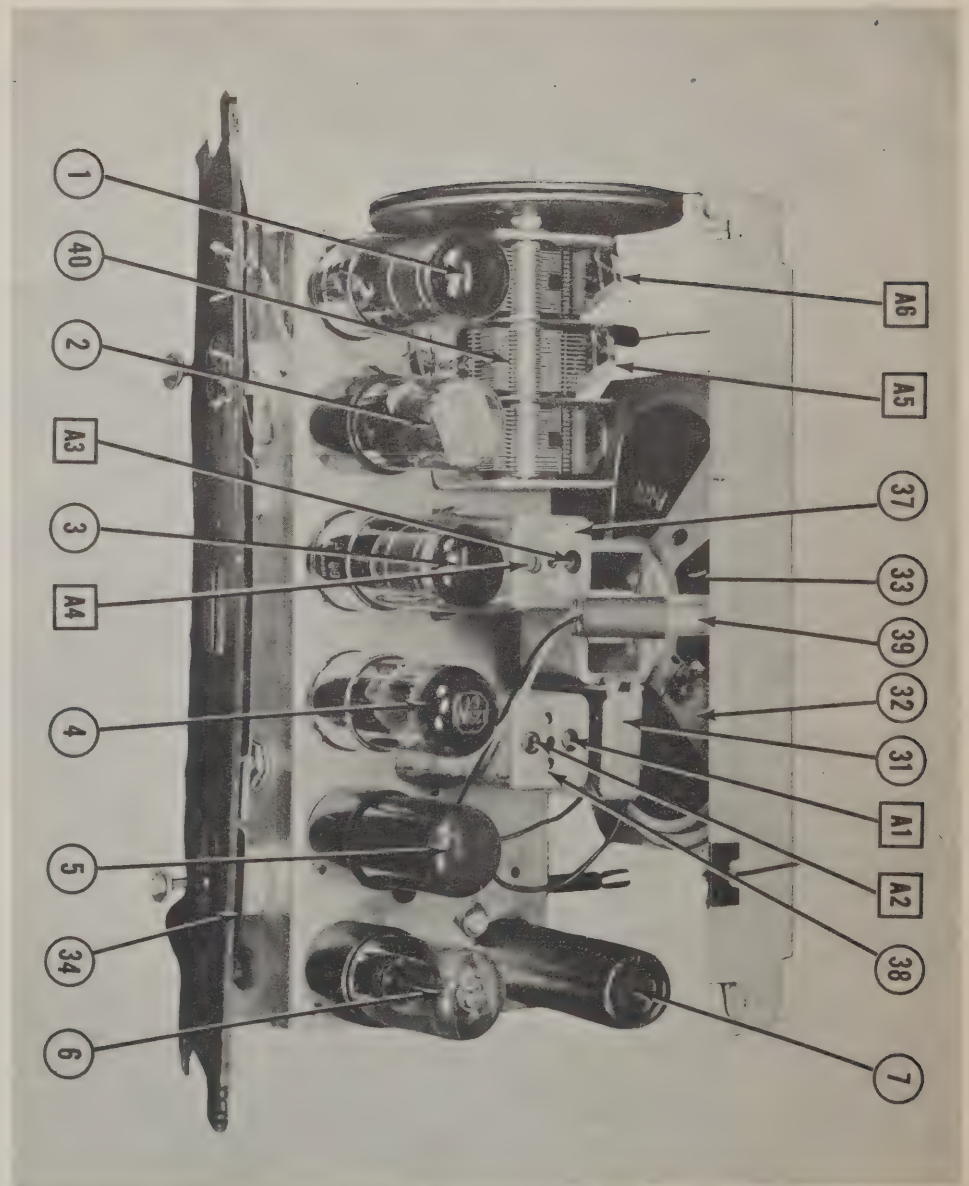
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MECK PART No.	IRC PART No.	IDENTIFICATION CODES
21	20KΩ	½		BTS-22K	Red-Blk.-Or. Oscillator Grid
22	1.8 Meg.	½		BTS-1.8 Meg.	Br.-Gray-Grn. AVC Network
23	220KΩ	½		BTS-220K	Red-Red-Yl. Diode RF Filter
24	200Ω	½		BW-½-220	Red-Blk.-Br. AF Cathode
25	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
26	220KΩ	½		BTS-220K	Red-Red-Yl. AF Plate Load
27	560KΩ	½		BTS-560K	Grn.-Blue-Yl. Output Grid
28	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
29	1000Ω	1		BTA-1000	Br.-Blk.-Red Filter
30	200Ω	1		BW-1-220	Red-Blk.-Br. Filter

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: MECK PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
31	3000Ω	3.1Ω	160Ω	.45Ω		A-3876*	T22S45*		*Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: MECK PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.				
32	PM	3.1Ω				
	CONE DIA.	VC DIA.				
33	4"x6"	1/2"	NOT READILY	REPLACEABLE-USE COMPLETE SPEAKER UNIT.		

R F COILS

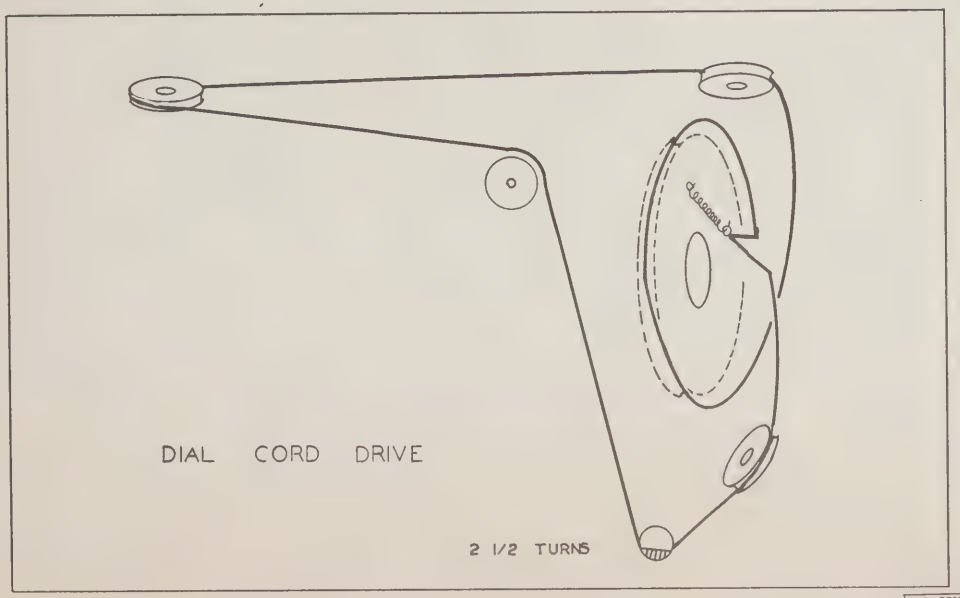
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: MECK PART No.	MEISSNER PART No.
34	Loop Ant.	.1Ω	1.3Ω		
35	RF Coil	90Ω	4.5Ω		14-1027
36	Osc. Coil		3.2Ω		14-1040
37	Input IF	27.5Ω	27Ω		16-6666
38	Output IF	25Ω	25Ω		16-6667

DIAL LIGHT

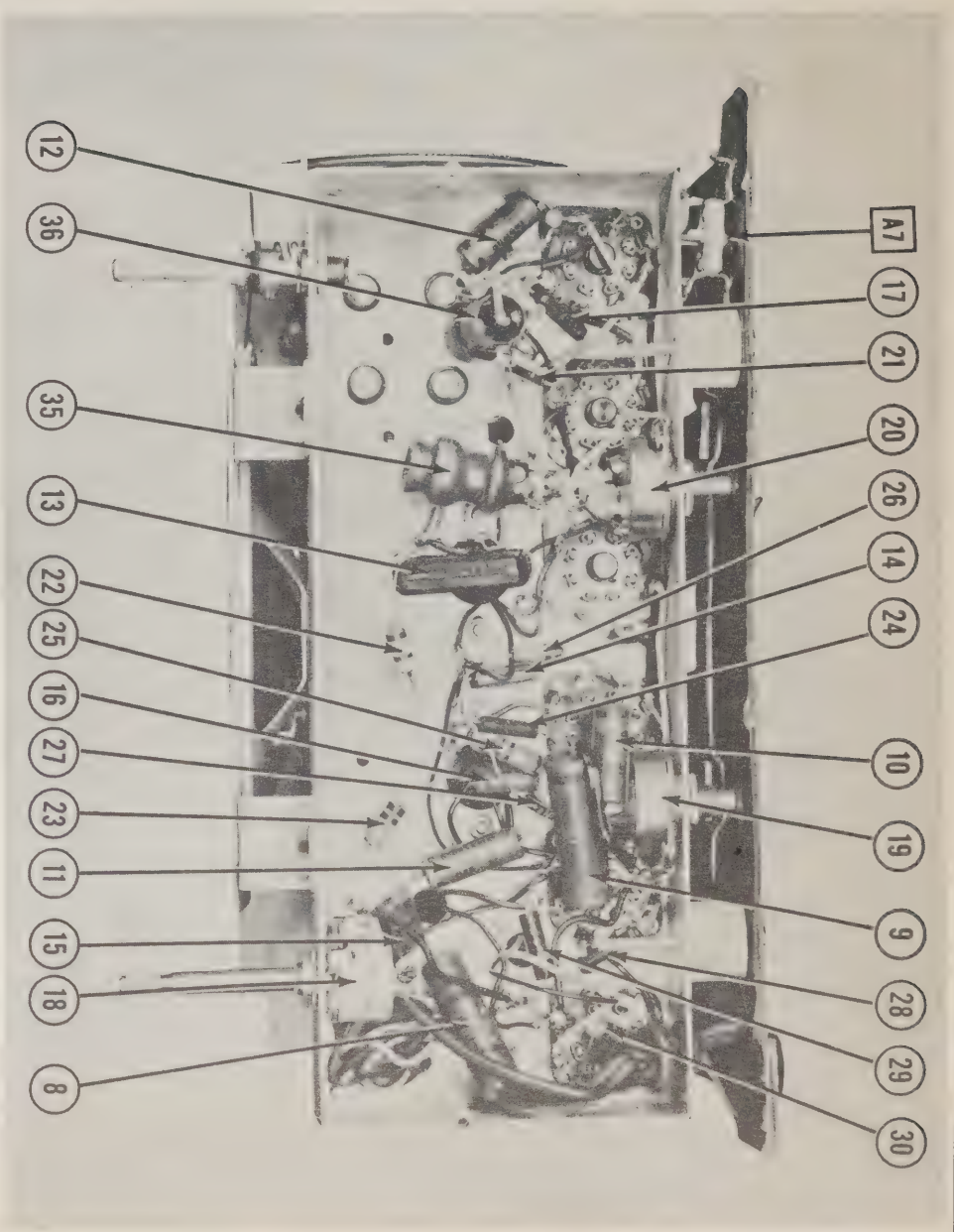
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: MECK PART No.		INSTALLATION NOTES
39	Bayonet	6-8	0.15	Brown			Type 47

MISCELLANEOUS

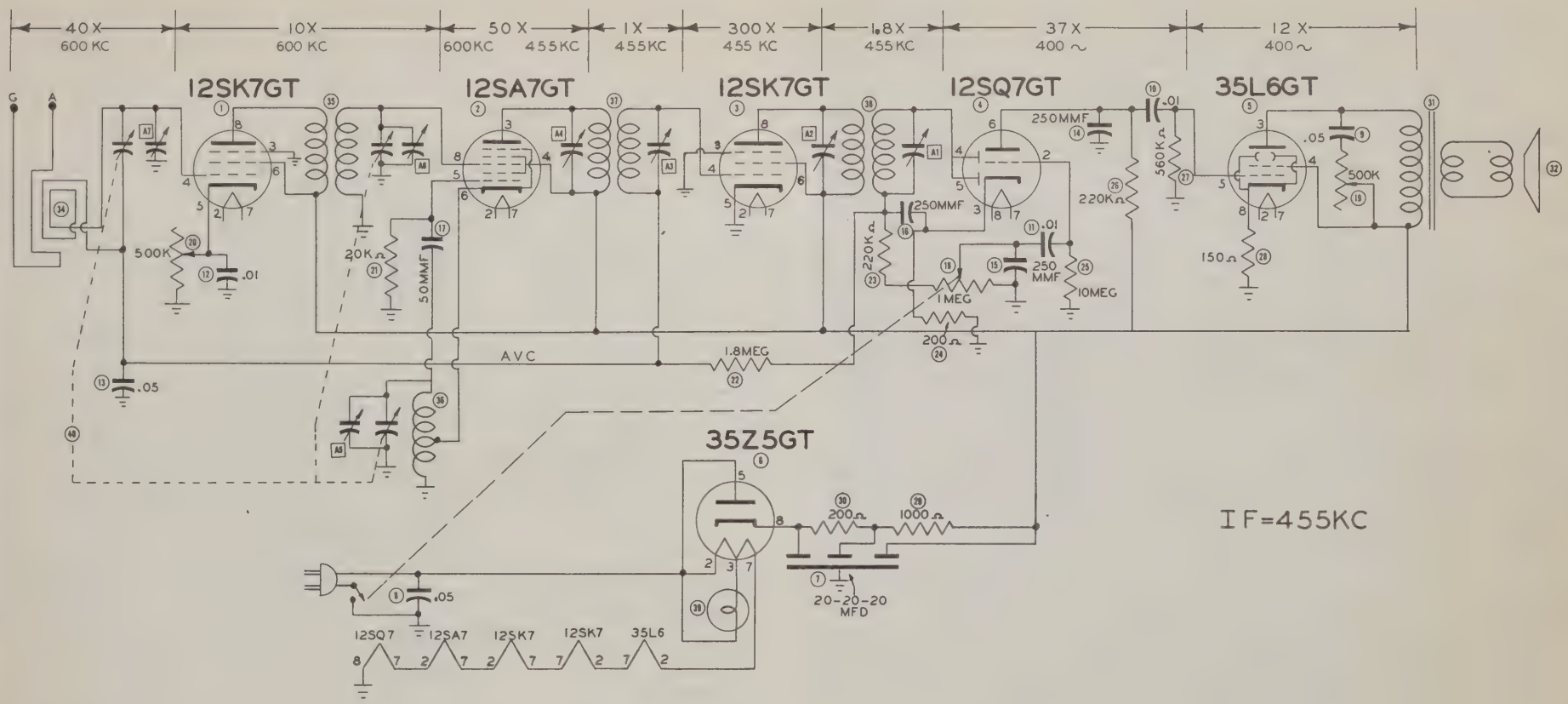
ITEM No.	PART NAME	MECK PART No.	NOTES
40	3 Gang Var. Cap	C-230555Z	(27-505 MMF, 52-304 MMF, 27-505 MMF)



CHASSIS—BOTTOM VIEW



MECK MODEL 6A6-W4



RF GAIN CONTROL SET JUST BELOW OSCILLATION POINT.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	0V.	25V.AC	0V.	-55V.DC	6V.	92V.DC	37V.AC	92V.DC
2	12SA7GT	0V.	12V.AC	92V.DC	92V.DC	-3V.DC	0V.	25V.AC	0V.
3	12SK7GT	0V.	49V.AC	0V.	-55V.DC	0V.	92V.DC	37V.AC	92V.DC
4	12SQ7GT	0V.	-4V.DC	0V.	-45V.DC	0V.	62V.DC	12V.AC	0V.
5	35L6GT	0V.	87V.AC	115V.DC	92V.DC	0V.	0V.	49V.AC	5.2V.DC
6	35Z5GT	0V.	117V.AC	114V.AC	120V.DC	117V.AC	0V.	87V.AC	130V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	0Ω	25Ω	0Ω	3MEG.	6KΩ	110KΩ	34Ω	110KΩ
2	12SA7GT	0Ω	11Ω	110KΩ	110KΩ	18.5KΩ	.5Ω	25Ω	3Ω
3	12SK7GT	0Ω	44Ω	0Ω	3MEG.	0Ω	110KΩ	34Ω	110KΩ
4	12SQ7GT	0Ω	10MEG.	200Ω	1.2MEG.	INF.	330KΩ	11Ω	0Ω
5	35L6GT	INF.	74Ω	110KΩ	110KΩ	500KΩ	INF.	44Ω	125Ω
6	35Z5GT	INF.	99Ω	96Ω	110KΩ	99Ω	INF.	74Ω	110KΩ

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RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

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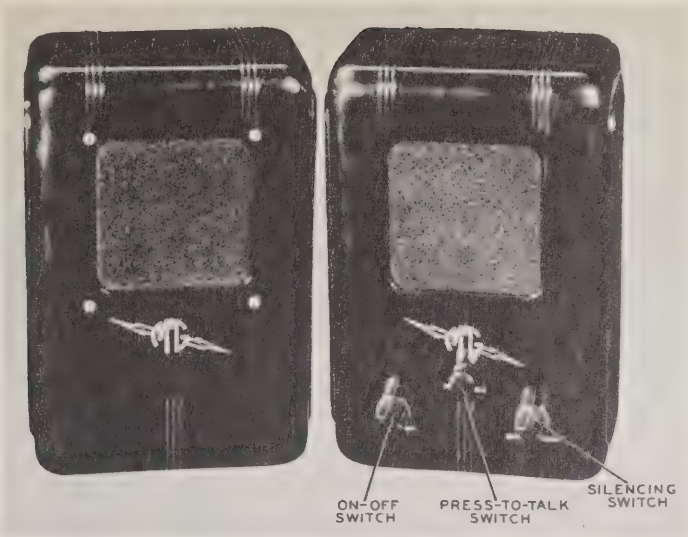
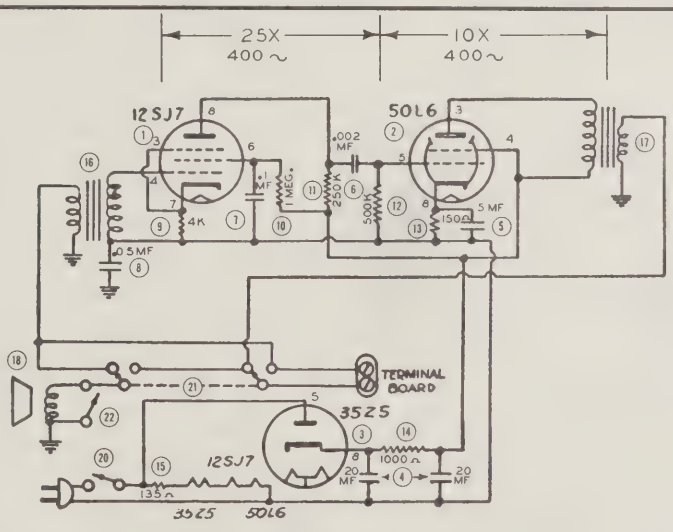
The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**



McGRADE MODEL M-100

TRADE NAME	McGrade, Model M-100
MANUFACTURER	E. W. McGrade Mfg. Co., 406 W. 34th St., Kansas City, Mo.
TYPE SET	AC-DC 3 Tube Inter-Comm. with Sub Station
TUBES (THREE)	Types, 12SJ7 AF Amp., 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC-DC RATING .210 Amps. @ 117V AC



NOTE: VOLTAGE & RESISTANCE READINGS TAKEN WITH PUSH BUTTON SWITCH "IN OUT" POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SJ7	0V.	0V.	145V.DC	0V.	145V.DC	25V.DC	12V.AC	33V.DC
2	50L6GT	0V.	12V.AC	112V.DC	107V.DC	0V.	0V.	62V.AC	5.3V.DC
3	35Z5GT	0V.	96V.AC	88V.AC	117V.AC	117V.AC	0V.	62V.AC	140V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SJ7	INF.	0Ω	3.9KΩ	2.7KΩ	3.9KΩ	1 MEG.	11Ω	310KΩ
2	50L6GT	INF.	11Ω	60KΩ	60KΩ	570KΩ	INF.	56Ω	135Ω
3	35Z5GT	0Ω	88Ω	82Ω	220Ω	220Ω	0Ω	56Ω	60KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

476-27

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: McGRADE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	AF Amp.	12SJ7	12SJ7	8N	
2	Power Output	50L6GT	50L6GT	7AC	
3	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: McGRADE PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
4A	20	150		TA-220	PRSA150-20-	BRD2215	2N509	DSB-2x20-150	Filter - Red
B	20	150			20				" - "
5	5	25		TA-5	PRS25-10	BR102A	TC22	M-10-25	Cath. Bypass
6	.002	600		TC-22	684-002	DT6D2	TP405	S-6-002	Audio Coupling
7	.1	200		TC-1	484-.1	DT4P1	TP428	S-4-1	Audio Screen Bypass
8	.05	400		TC-15	484-05	DT4S5	TP426	S-4-05	Line Isolation

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: McGRADE PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
9	4000Ω	½		BTS-3900	Yl.-Blk.-Red AF Cathode
10	1 Meg.	½		BTS-1 Meg.	Br.-Blk._Grn. AF Screen Dropping
11	250KΩ	½		BTS-270K	Red-Grn.-Yl. AF Plate Load
12	500KΩ	½		BTS-470K	Grn.-Blk.-Yl. Output Grid
13	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
14	1000Ω	5		AB-1000	Filter
15	135Ω	10		ABA-135	Line Dropping-See Note 1

Note 1 - On IRC replacement set slider @ 135Ω from one end.

TRANSFORMER (MICROPHONE)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: TURNS RATIO	REPLACEMENT DATA: McGRADE PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.	INSTALLATION NOTES
16	8Ω	50,000Ω	.6Ω	2900Ω	1 to 80		A-3856	T22S46	

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: McGRADE PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.	REPLACEMENT DATA:	INSTALLATION NOTES
17	5200Ω	8Ω	180Ω	1.1Ω		A-3856	T22S46		

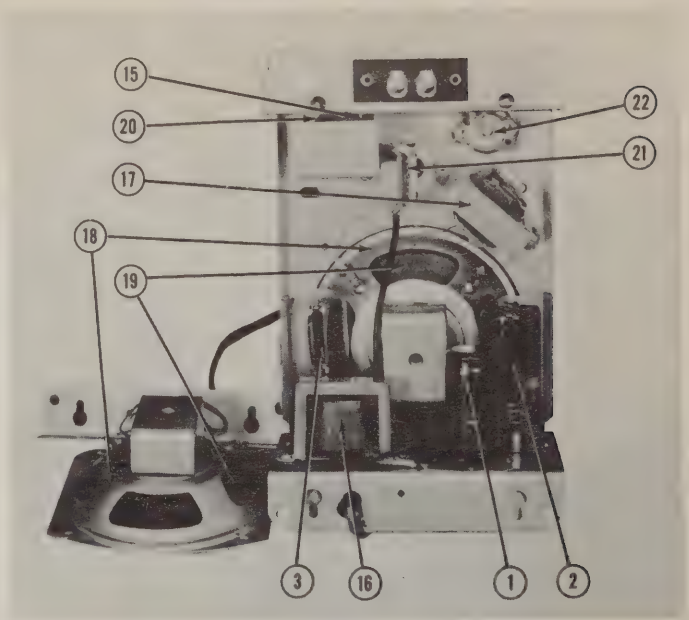
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: McGRADE PART No.	REPLACEMENT DATA: JENSEN PART No.	REPLACEMENT DATA:	INSTALLATION NOTES
18	FIELD	VC IMP.				
	PM	8Ω				
19	CONE DIA.	VC DIA.				
	4"	1/2"	NOT READILY	REPLACEABLE-USE COMPLETE SPEAKER UNIT.		

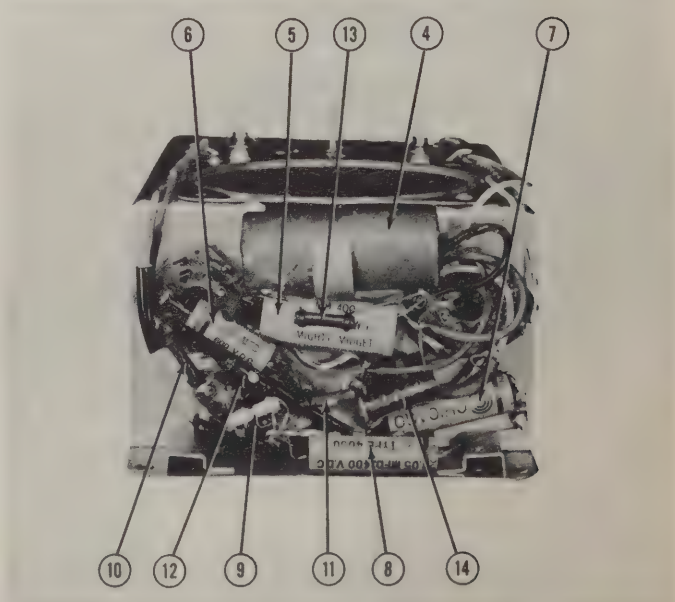
MISCELLANEOUS

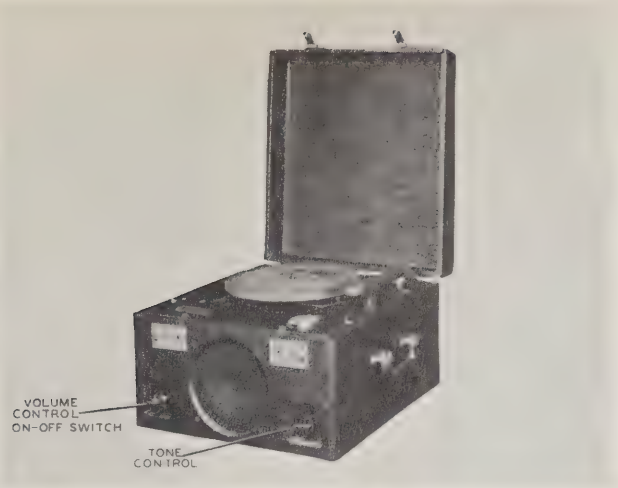
ITEM No.	PART NAME	McGRADE PART No.	NOTES
20	Switch		On-Off
21	"		Push-to-Talk
22	"		Silencing

CHASSIS—TOP VIEW



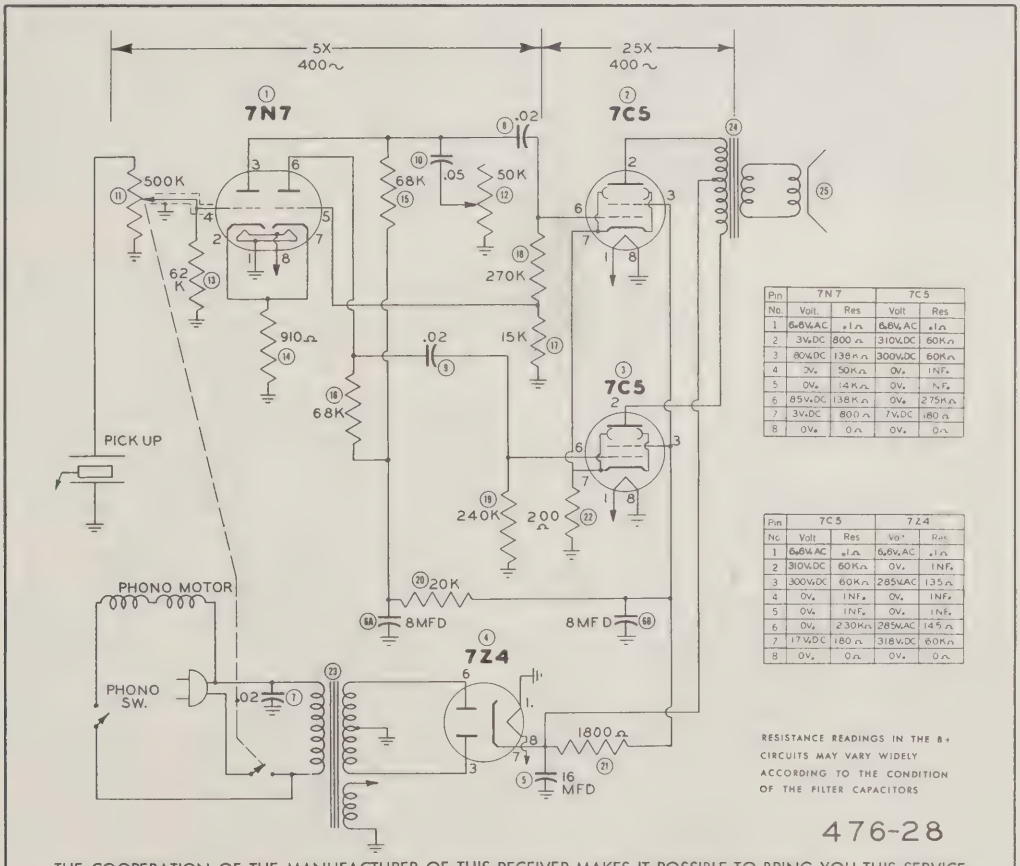
CHASSIS—BOTTOM VIEW





MUSITRON MODEL PX

TRADE NAME	Musitron, Model PX
MANUFACTURER	The Musitron Co., 223 W. Erie St., Chicago 10, Ill.
TYPE SET	AC Operated Phonograph with 4 tube Amplifier and Speaker
TUBES (FOUR)	Types, 7N7 Audio Amp.-Phase Inverter, (2) 7C5 Power Output, 7Z4 Rectifier.
POWER SUPPLY	110-120 Volts AC RATING .540 Amp. @ 117 Volts AC



Pin No.	7N7 Volt	7N7 Res	7C5 Volt	7C5 Res
1	6.6V AC	.1Ω	6.6V AC	.1Ω
2	3V DC	800Ω	310V DC	60KΩ
3	80V DC	138KΩ	300V DC	60KΩ
4	0V.	50KΩ	0V.	INF.
5	0V.	14KΩ	0V.	INF.
6	85V DC	138KΩ	0V.	275KΩ
7	3V DC	800Ω	7V DC	180Ω
8	0V.	0Ω	0V.	0Ω

Pin No.	7C5 Volt	7C5 Res	7Z4 Volt	7Z4 Res
1	6.6V AC	.1Ω	6.6V AC	.1Ω
2	310V DC	60KΩ	0V.	INF.
3	300V DC	60KΩ	285V AC	135Ω
4	0V.	INF.	0V.	INF.
5	0V.	INF.	0V.	INF.
6	0V.	230KΩ	285V AC	145Ω
7	17V DC	180Ω	318V DC	60KΩ
8	0V.	0Ω	0V.	0Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

476-28

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1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: MUSITRON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	AF Amp.-Phase Inverter	7N7	7N7	8AC	
2	Power Output	7C5	7C5	6AA	
3	" "	7C5	7C5	6AA	
4	Rectifier	7Z4	7Z4	5AB	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MUSITRON PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
5	16	450		UT-16	PRS450-16	BR1645	ST597	M-16-450	Filter
6A	8	450		UT-88	PRSA450-8-8	BRL8845	2N518	M-2x8-450	" - Red
B	8	450							" - "
7	.02	600		TC-12	684-02	DT6S2	TP412	S-6-02	Line Bypass
8	.02	400		TC-12	484-02	DT4S2	TP423	S-4-02	Audio Coupling
9	.02	400		TC-12	484-02	DT4S2	TP423	S-4-02	" "
10	.05	600		TC-15	684-05	DT6S5	TP415	S-6-05	Tone Compensation

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MUSITRON PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
11A	500KΩ	1		MR48	D13-133	M-60-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 11A per instructions.
C	Switch			M26	41	SW-A	" " " " "
12A	50KΩ	1		MR33	D13-123	M-46-Z	Tone Control
B	Shaft			Not Req.	A	Not Req.	Attach to 12A per instructions.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MUSITRON PART No.	IRC PART No.	IDENTIFICATION CODES
13	62KΩ	½		BTS-56K	Blue-Red-Or. AF Grid
14	910Ω	½		BTS-820	White-Br.-Br. AF Cathode
15	68KΩ	½		BTS-68K	Blue-Gray-Or. AF Plate Load
16	68KΩ	½		BTS-68K	Blue-Gray-Or. Phase Inverter Plate Load
17	15KΩ	½		BTS-15K	Br.-Grn.-Or. Phase Inverter Grid
18	270KΩ	½		BTS-270K	Red-Vi.-Yl. Output Grid
19	240KΩ	½		BTS-220K	Red-Yl.-Yl. " "
20	20KΩ	½		BTS-20K	Red-Blk.-Or. Filter
21	1800Ω	2		BT-2-1800	Br.-Gray-Red "
22	200Ω	2		BW-2-220	Red-Blk.-Br. Output Cathode

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: MUSITRON PART No.	STANCOR PART No.	THORDARSON PART No.	INSTALLATION NOTES
23	117V AC @ .54A	570V CT @ .086A	6.6V AC @ 2.5A			P-6312*	T22R04*	*Use universal mounting brackets.

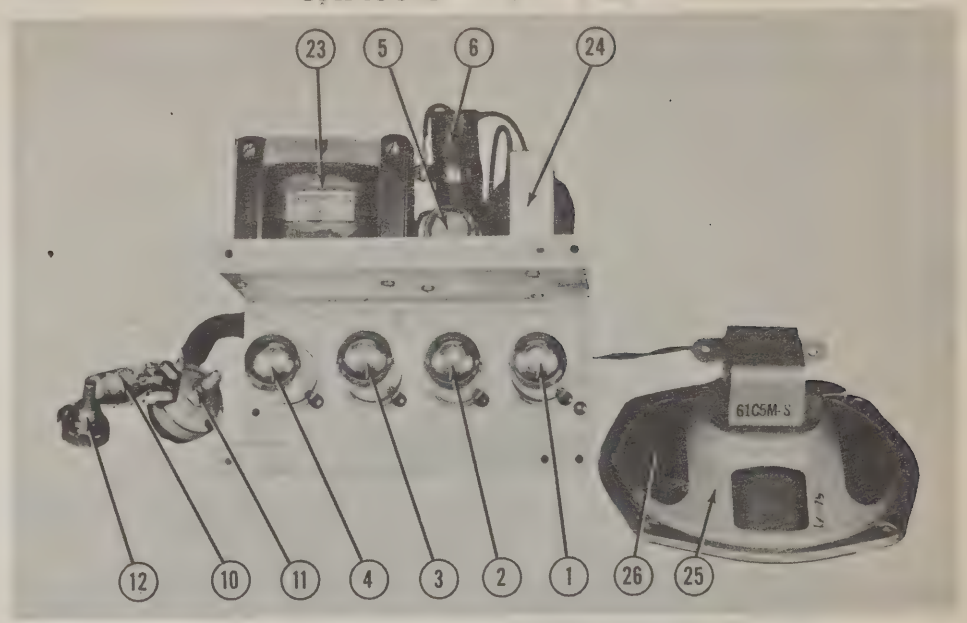
TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: MUSITRON PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
24	6000Ω CT	3.2Ω	350Ω CT	.8Ω		A-3852	T22S471		†Drill one new mounting hole.

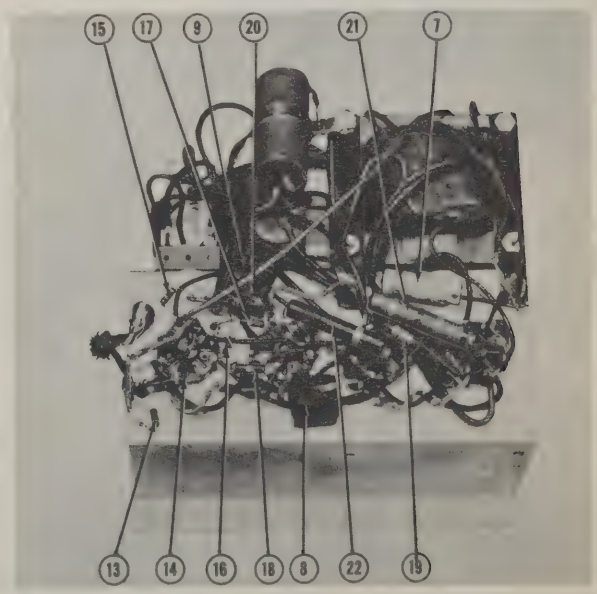
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: MUSITRON PART No.	JENSEN PART No.		INSTALLATION NOTES
25	FIELD PM	VC IMP. 3.2Ω		ST-108 Mod. P6-X		
26	CONE DIA. 6"	VC DIA. 1/2"	NOT READILY	REPLACEABLE-USE COMPLETE SPEAKER UNIT.		

CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW



PACKARD-BELL
MODEL 5DA

PACKARD-BELL
MODEL 5DA

PACKARD-BELL MODEL 5DA

TRADE NAME	Packard-Bell, Model 5DA
MANUFACTURER	Packard-Bell, 3443 Wilshire Blvd., Los Angeles, Calif.
TYPE SET	AC-DC Operated Superheterodyne-Self Contained Loop Antenna
TUBES (FIVE)	Types, 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier or Minature Equivalents.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	540-1750 RATING .230 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer parallel with base of dial. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and B-. Volume control should be at maximum. Output of signal generator should be no higher than necessary to obtain an output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to rear stator of tuning cap. Low side to B-.	455KC	Tuning cap fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001 MFD. to reduce hum modulation.
200MMFD	High side to ext. ant. lead. Low side to ext. ground lead.	1400KC	1400KC	"	A5	Adjust for maximum output.
200MMFD	"	1400KC	Tune for maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

PACKARD-BELL
MODEL 5DA

TUBES

ITEM No.	USE	REPLACEMENT DATA: PACKARD-BELL PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SA7	12SA7	8R	or 12BE6
2	IF Amp.	12SK7	12SK7	8N	or 12BA6
3	Det.-AVC-AF	12SQ7	12SQ7	8Q	or 12AT6
4	Power Output	50L6GT	50L6GT	7AC	or 50B5
5	Rectifier	35Z5GT	35Z5GT	6AD	or 35W4

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PACKARD-BELL PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	30	150		TA-303		EZ42215C	3N533	DSB-302	Filter - Red
B	20	150					TC26	M-20-150	" - Blue
C	20	150							" - Green
D	20	25		TA-25					Cath. Bypass - Yellow
7	.05	400		TC-15	484-05	DT4S5	TP426	S-4-05	Line Filter
8	.005	600		TC-25	684-005	DT6D5	TP405	S-6-005	Output Plate Bypass
9	.01	600		TC-11	684-01	DT6S1	TP410	S-6-01	Audio Coupling
10	.001	600		TC-21	684-001	DT6D1	TP404	S-6-001	Audio Plate Bypass
11	.005	600		TC-25	684-005	DT6D5	TP408	S-6-005	Audio Coupling
12	.2	200		TC-2	484-.2	DT4P2	TP428	S-4-2	Line Isolation
13	.05	400		TC-15	484-05	DT4S5	TP426	S-4-05	AVC Filter
14	250	500		1FM-325	1468-00025	5W5T25	MC240	MO.5-325	IF Bypass Vol. Cont.
15	250	500		1FM-325	1468-00025	5W5T25	MC240	MO.5-325	Osc. Grid Capacitor

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PACKARD-BELL PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
16A	500KΩ	1	25001	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 16A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

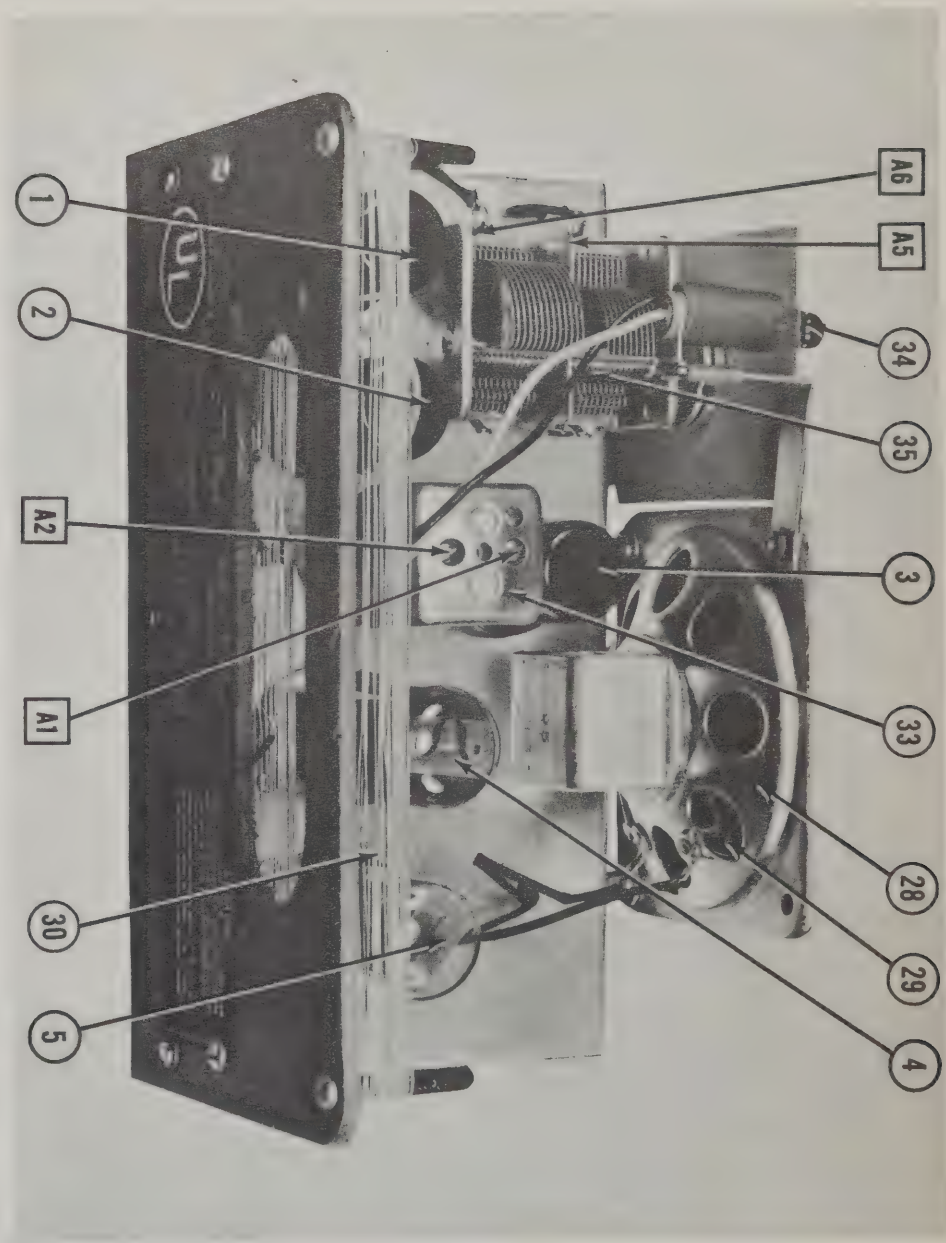
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PACKARD-BELL PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
17	22KΩ	½		BTS-22K	Red-Red-Or. Oscillator Grid
18	220KΩ	½		BTS-220K	Red-Red-Yl. Line Isolation
19	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
20	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
21	220KΩ	½		BTS-220K	Red-Red-Yl. AF Plate Load
22	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
23	150Ω	1		BW-1-150	Br.-Grn.-Br. Output Cathode
24	1000Ω	1		BTA-1000	Br.-Blk.-Red Filter
25	180Ω	½		BW-½-180	Br.-Gray-Br. Filter
26	560Ω	½		BTS-560	Grn.-Blue-Br. Pilot Light Shunt

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: PACKARD-BELL PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
27	3000Ω	4Ω	200Ω	.9Ω	89411	A-3876	T22S45		

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: PACKARD-BELL PART No.	REPLACEMENT DATA: JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.		ST-113		
28	PM	4.0Ω	83005	Mod. P4-X		
	CONE DIA.	VC DIA.				
29	4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

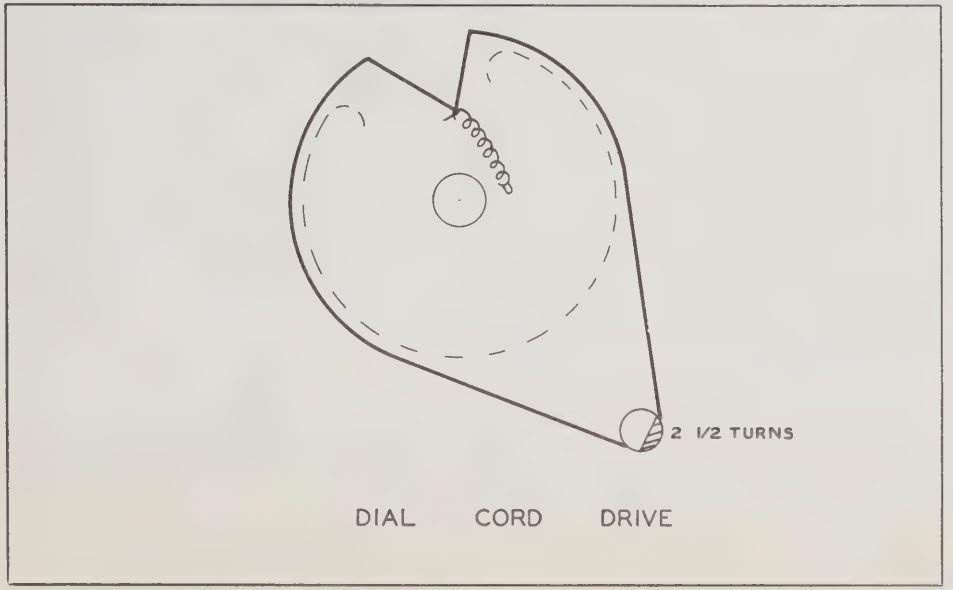
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: PACKARD-BELL PART No.	REPLACEMENT DATA: MEISSNER PART No.	
30	Loop Ant.	.3Ω	4.5Ω			
31	Osc. Coil	1Ω	6Ω		14-1040	
32	Input IF	25Ω	25Ω			
33	Output IF	20Ω	20Ω		16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: PACKARD-BELL PART No.		INSTALLATION NOTES
34	Bayonet	6-8	0.15	Brown			Type 47

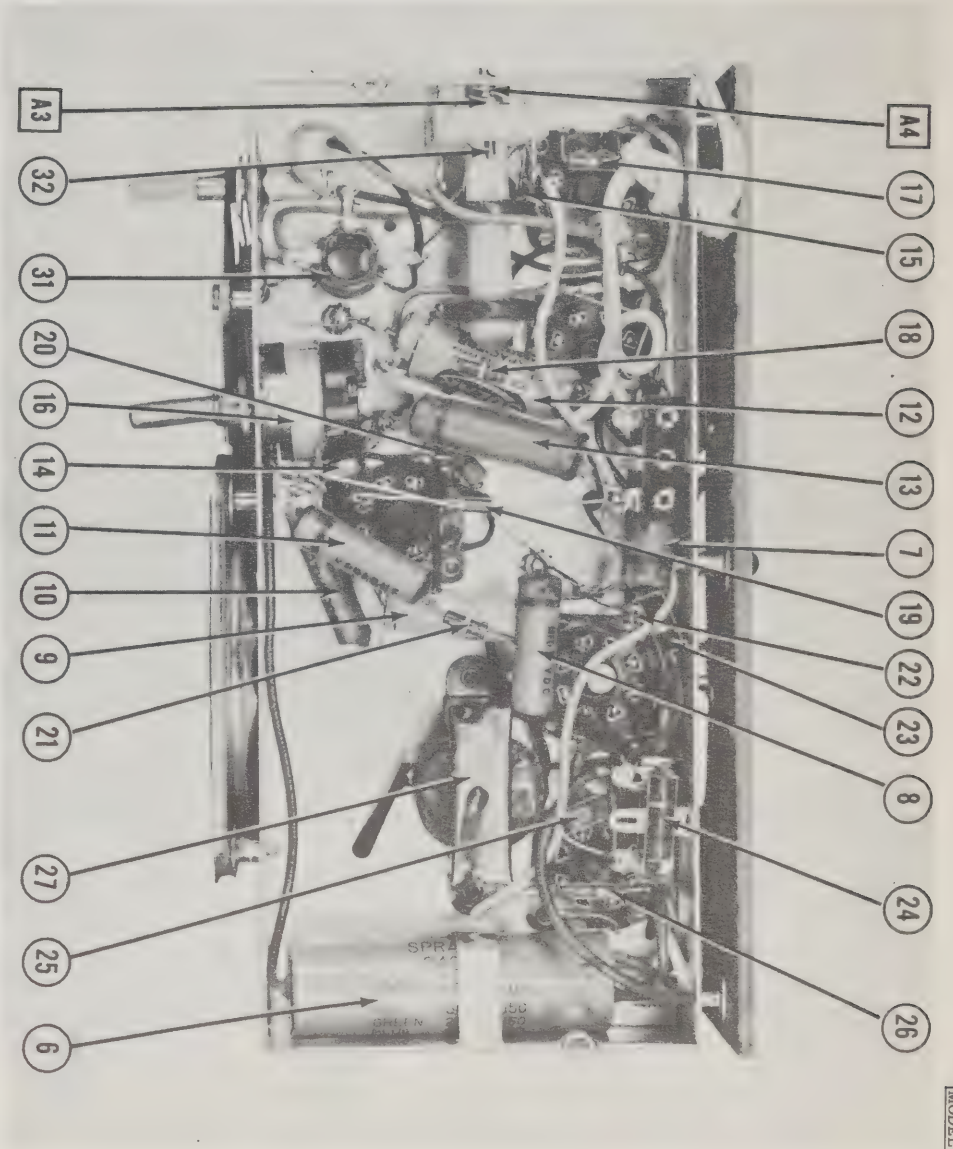
MISCELLANEOUS

ITEM No.	PART NAME	PACKARD-BELL PART No.	NOTES
35	2 Gang Var. Cap		(17-414 MMF, 17-181 MMF)

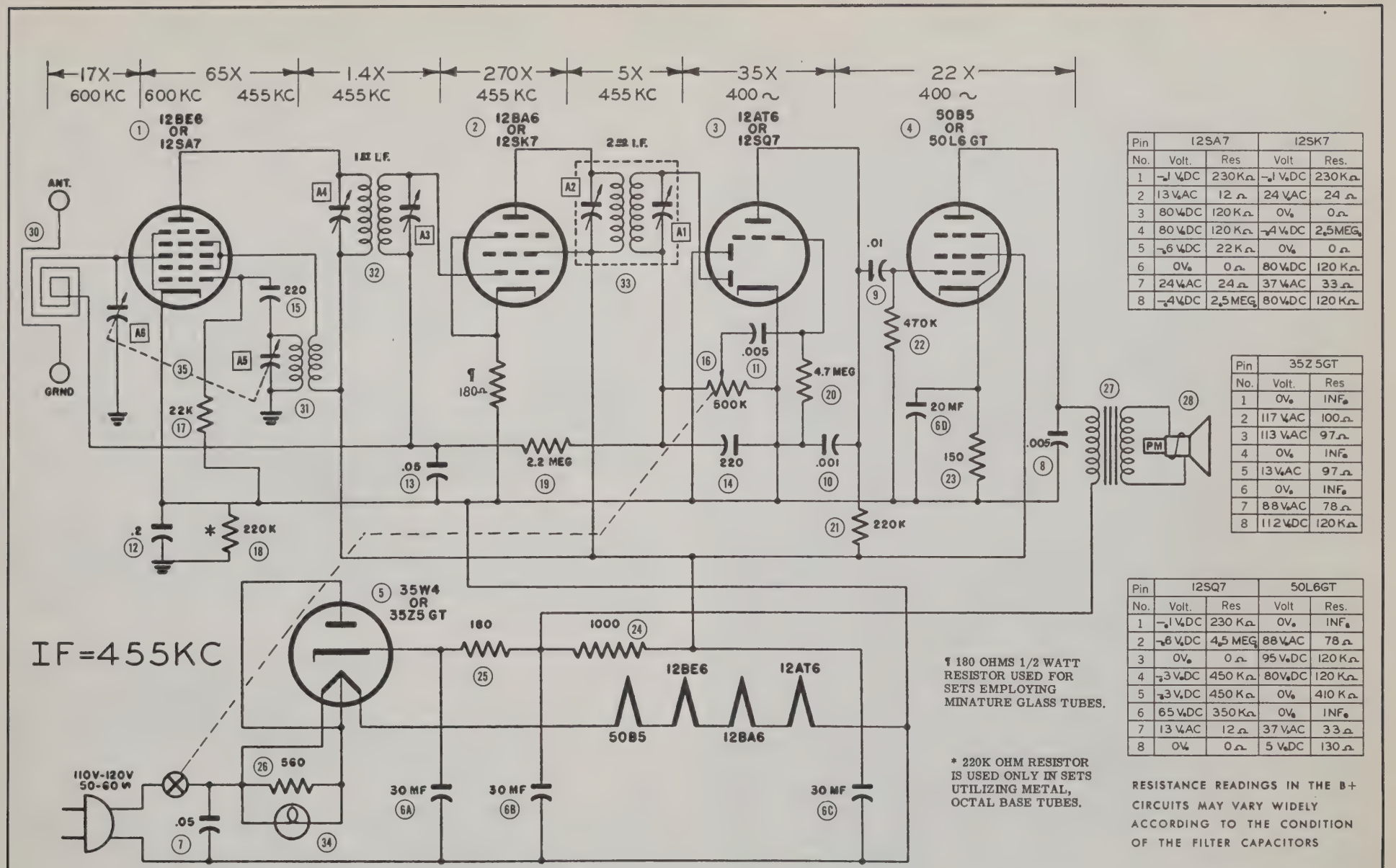


DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



PACKARD-BELL MODEL 5DA



Pin No.	12SA7 Volt.	12SA7 Res	12SK7 Volt	12SK7 Res.
1	-1 V DC	230 KΩ	-1 V DC	230 KΩ
2	13 V AC	12 Ω	24 V AC	24 Ω
3	80 V DC	120 KΩ	0 V	0 Ω
4	80 V DC	120 KΩ	-4 V DC	2.5 MEG
5	-6 V DC	22 KΩ	0 V	0 Ω
6	0 V	0 Ω	80 V DC	120 KΩ
7	24 V AC	24 Ω	37 V AC	33 Ω
8	-4 V DC	2.5 MEG	80 V DC	120 KΩ

Pin No.	35Z5GT Volt.	35Z5GT Res
1	0 V	INF
2	117 V AC	100 Ω
3	113 V AC	97 Ω
4	0 V	INF
5	13 V AC	97 Ω
6	0 V	INF
7	88 V AC	78 Ω
8	112 V DC	120 KΩ

Pin No.	12SQ7 Volt.	12SQ7 Res	50L6GT Volt	50L6GT Res.
1	-1 V DC	230 KΩ	0 V	INF
2	-8 V DC	4.5 MEG	88 V AC	78 Ω
3	0 V	0 Ω	95 V DC	120 KΩ
4	-3 V DC	450 KΩ	80 V DC	120 KΩ
5	-3 V DC	450 KΩ	0 V	410 KΩ
6	65 V DC	350 KΩ	0 V	INF
7	13 V AC	12 Ω	37 V AC	33 Ω
8	0 V	0 Ω	5 V DC	130 Ω

¶ 180 OHMS 1/2 WATT RESISTOR USED FOR SETS EMPLOYING MINATURE GLASS TUBES.

* 220K OHM RESISTOR IS USED ONLY IN SETS UTILIZING METAL, OCTAL BASE TUBES.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

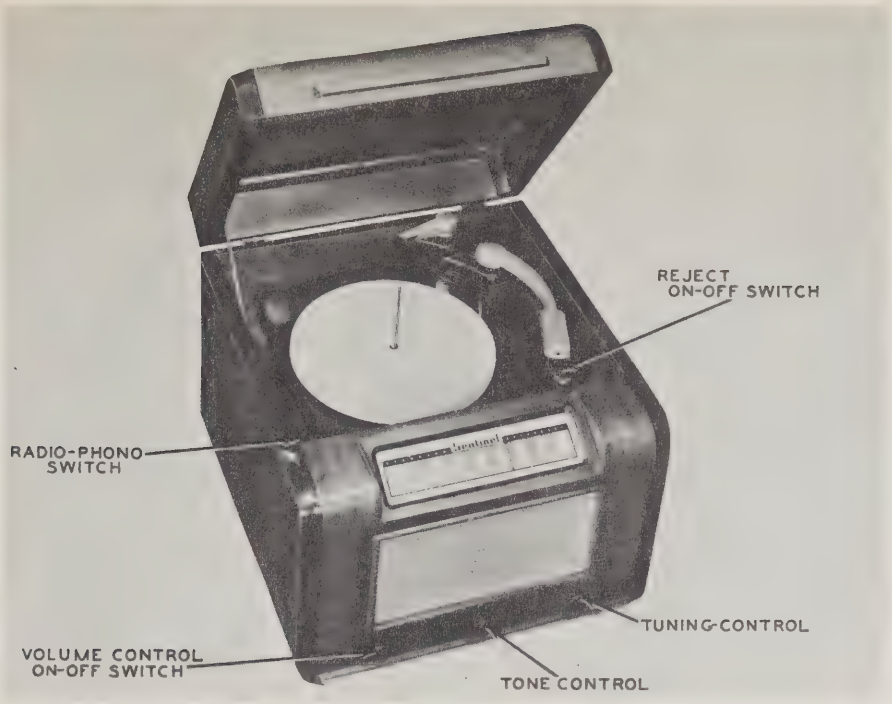
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

476-29

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

SENTINEL
MODEL 292K



SENTINEL MODEL 292K

SENTINEL
MODEL 292K

TRADE NAME	Sentinel, Model 292K
MANUFACTURER	Sentinel Radio Corp., 2020 Ridge Ave., Evanston, Ill.
TYPE SET	AC Operated Combination Automatic Phono-Radio Superheterodyne with Loop Antenna
TUBES (SIX)	Types, 6SK7GT/G, 6SA7GT/G Converter, 6SK7GT/G IF Amp., 6SF7 Det.-AVC-AF, 6V6GT/G Power Output, 5Y3GT/G Rectifier.
POWER SUPPLY	110-120 Volts AC
TUNING RANGE—BROADCAST	540-1650KC RATING .600 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap fully closed and set left edge of dial pointer saddle 2-1/8" from left end of dial backplate. Volume control should be at maximum. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.2 MFD.	High side to Pin 8 (grid) 6SA7. Low side to chassis.	455KC	Tuning cap fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
200MMFD	High side to ext. ant. lead. Low side to ext. gnd. connection.	"	Tuning cap fully closed.	"	A5	Adjust for minimum output.
200MMFD	"	1650KC	Tuning cap fully open.	"	A6	Adjust for maximum output.
200MMFD	"	1400KC	Tune for maximum output.	"	A7	" " " "

DISASSEMBLY INSTRUCTIONS

1. Remove three push-on type knobs from front of cabinet.
2. Remove phono-motor plug from receptacle.
3. Remove phono-pick-up plug from receptacle.
4. Remove two Phillips head screw holding radio-phono switch and push switch through hole in cabinet.
5. Remove four Phillips head screws holding chassis mounting board to cabinet.
6. Remove chassis and mounting board.
7. Remove four bolts holding mounting board to chassis. Remove mounting board.

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PARTS LIST AND DESCRIPTIONS

SENTINEL MODEL 392K

TUBES

ITEM No.	USE	REPLACEMENT DATA: SENTINEL PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	6SK7GT/G	6SK7GT/G	8N	
2	Converter	6SA7GT/G	6SA7GT/G	8AD	
3	IF Amp.	6SK7GT/G	6SK7GT/G	8N	
4	Det.-AVC-AF	6SF7	6SF7	7AZ	
5	Power Output	6V6GT/G	6V6GT/G	7AC	
6	Rectifier	5Y3GT/G	5Y3GT/G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SENTINEL PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	20	450	25E2	EL-220	AF-44J	UP6BJ38	FP234	DY-2x20-450	■ Filter
B	20	450							▲ "
8	20	25	25E3	TA-25	PRS25-20	BR202A	TC26	M-25-25	Output Cath. Bypass
9	.01	220	23E250	TC-11	484-01	DT4S1	TP421	TM-6-01	Line Bypass
10	.01	220	23E250	TC-11	484-01	DT4S1	TP421	TM-6-01	" "
11	.003	600	23E606	TC-23	684-003	DT6D3	TP406	S-6-003	Output Plate Bypass
12	.05	400	23E416	TC-15	484-05	DT4S5	TP426	S-4-05	Audio Coupling
13	.1	400	23E418	TC-1	484-.1	DT4P1	TP428	S-4-1	Audio Plate Decoup.
14	.1	400	23E418	TC-1	484-.1	DT4P1	TP428	S-4-1	Audio Screen Bypass
15	.05	400	23E416	TC-15	484-05	DT4S5	TP426	S-4-05	Audio Coupling
16	.005	400	23E408	TC-25	484-005	DT6D5	TP408	S-6-005	Tone Compensation
17	.05	200	23E216	TC-15	484-05	DT4S5	TP426	S-4-05	AVC Filter
18	.1	400	23E418	TC-1	484-.1	DT4P1	TP428	S-4-1	Screen Bypass
19	.1	200	23E218	TC-1	484-.1	DT4P1	TP428	S-4-1	AVC Filter
20	100	500	23E39	1FM-31	1468-0001	5W5T1	MC235	MO.5-31	Feedback
21	150	500	23E40	1FM-315	1468-00015	5W5T15	MC236	MO.5-315	Tone Compensation
22	100	500	23E39	1FM-31	1468-0001	5W5T1	MC235	MO.5-31	Diode Filter
23	100	500	23E39	1FM-31	1468-0001	5W5T1	MC235	MO.5-31	" "
24	100	500	23E39	1FM-31	1468-0001	5W5T1	MC235	MO.5-31	Osc. Grid Capacitor
25	250	500	23E42	1FM-325	1468-00025	5W5T25	MC240	MO.5-325	RF Coupling

CONTROLS

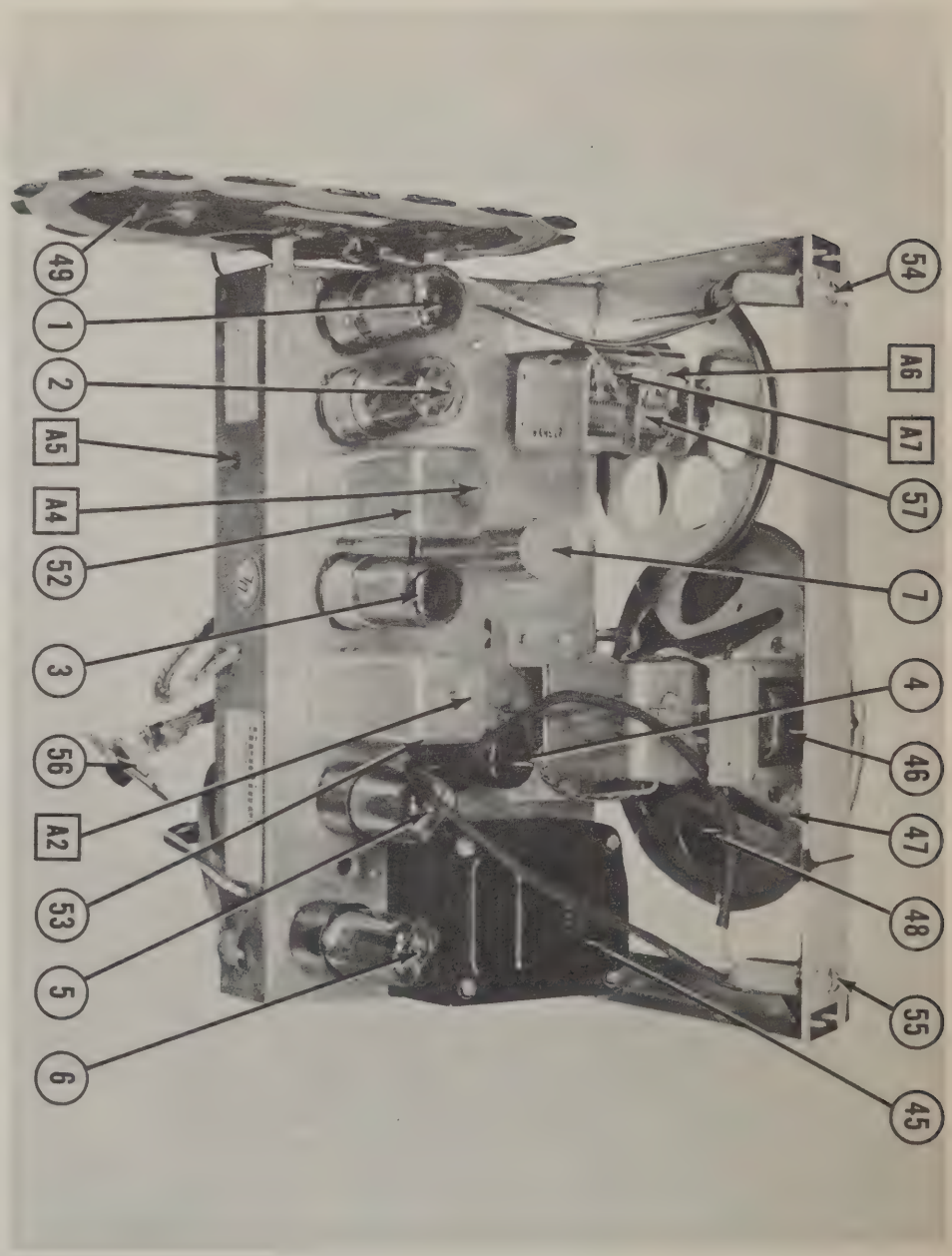
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SENTINEL PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
26A	500KΩ	1	28E4	MK401	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 26A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "
27A	500KΩ	1	28E18	MK401	D13-133	AM-60-Z	Tone Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 27A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SENTINEL PART No.	IRC PART No.	IDENTIFICATION CODES
28	470Ω	2		BT-2-4700	Yl.-Vi.-Red RF Plate Load
29	220KΩ	1/3	27E224	BTS-220K	Red-Red-Yl. Converter Grid
30	22KΩ	1/3	27E223	BTS-22K	Red-Red-Or. Oscillator Grid
31	10 Meg.	1/3	27E106	BTS-10 Meg.	Br.-Blk.-Blue AVC Network
32	2.2 Meg.	1/3	27E225	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
33	1 Meg.	1/3	27E105	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
34	10KΩ	2		BT-2-10K	Br.-Blk.-Or. Voltage Dropping
35	47KΩ	1/3	27E473	BTS-47K	Yl.-Vi.-Or. Diode RF Filter
36	10 Meg.	1/3	27E106	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
37	470KΩ	1/3	27E474	BTS-470K	Yl.-Vi.-Yl. AF Plate Load
38	150KΩ	1/3	27E154	BTS-150K	Br.-Grn.-Yl. AF Plate Decoupling
39	3.3 Meg.	1/3	27E335	BTS-3.3 Meg.	Or.-Or.-Grn. AF Screen Dropping
40	470KΩ	1/3	27E474	BTS-470K	Yl.-Vi.-Yl. Output Grid
41	270Ω	1/2	27E271-2	BW-½-270	Red-Vi.-Br. Output Cathode
42	3.3 Meg.	1/3	27E335	BTS-3.3 Meg.	Or.-Or.-Grn. Feedback
43	325Ω	5	27E1004	ABA-350	Filter - See Note 1
44	1 Meg.	1/3	27E105	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network

Note 1-On IRC replacement set slider @ 325Ω from one end.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	SENTINEL PART No.	STANCOR PART No.	THORDARSON PART No.	
45	117V AC @ .6A	620V CT @ .084A	5.0V AC @ 1.8A	6.3V AC @ 2.1A	22E5	P-6312	T22R04	

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		SENTINEL PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
46	8000Ω	3.4Ω	550Ω	1.0Ω		A-3823	T22S87		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			SENTINEL PART No.	JENSEN PART No.		
	FIELD RES.	VC IMP.				
47	630Ω	3.4Ω	1E10			
	CONE DIA.	VC DIA.				
48	6"	5/8"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

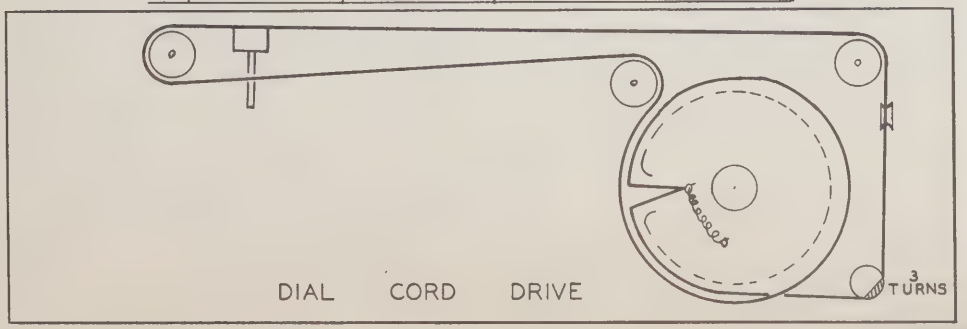
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	SENTINEL PART No.	MEISSNER PART No.	
49	Loop Ant.	0Ω	1Ω	20E51		
50	Osc. Coil	1Ω	8.5Ω	20E38	14-1040	
51	Wave Trap		55Ω	2E19		
52	Input IF	7.5Ω	7.5Ω	20E41	16-5740	
53	Output IF	7.5Ω	8Ω	20E42	16-5742	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					SENTINEL PART No.		
54	Bayonet	6-8	0.25	Blue	40E2		Type 44
55	"	6-8	0.25	"	40E2		" "

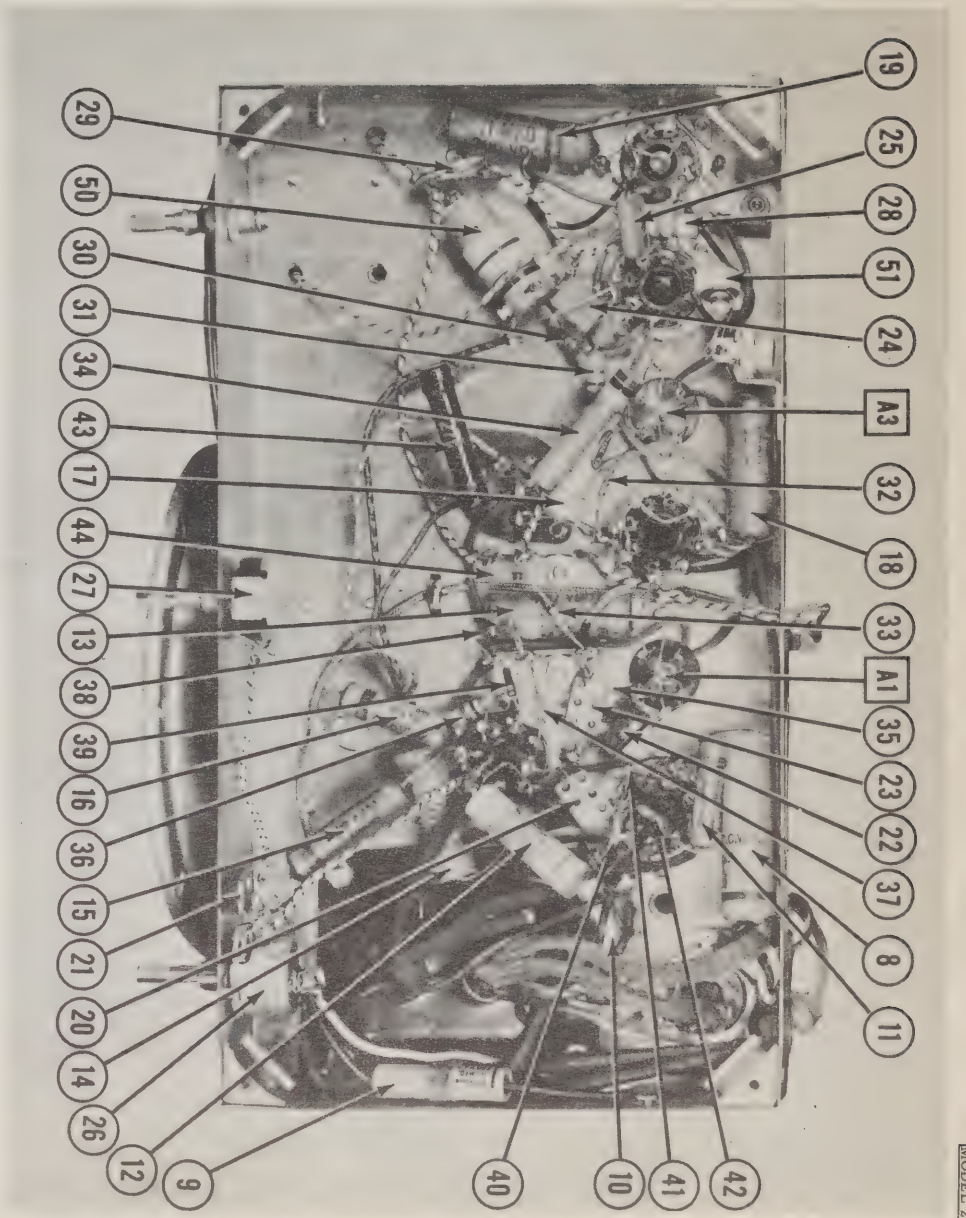
MISCELLANEOUS

ITEM No.	PART NAME	SENTINEL PART No.	NOTES
56	Switch	20E203	Radio-Phono (DPDT)
57	2 Gang Var. Cap.	24E6	(30-463 MMF, 17-194 MMF)
A5	Trimmer	24E30	3-30MMF
	Dial Scale	36E12	Glass
	Dial Pointer	35E8-2	

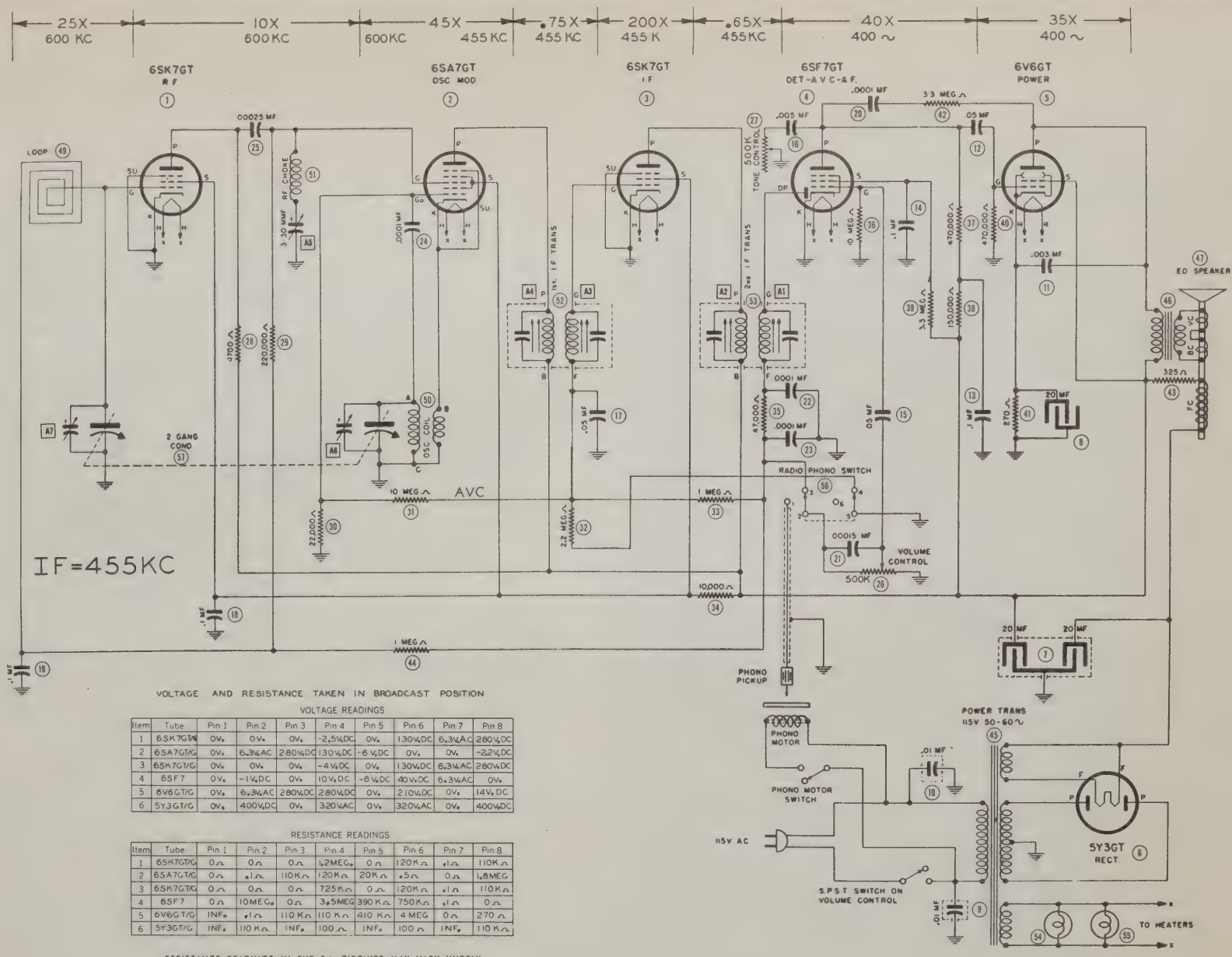


SENTINEL MODEL 292K

CHASSIS—BOTTOM VIEW



SENTINEL MODEL 292K



VOLTAGE AND RESISTANCE TAKEN IN BROADCAST POSITION

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7GT/G	0V.	0V.	0V.	-2.5V.DC	0V.	130V.DC	6.3V.AC	280V.DC
2	6SA7GT/G	0V.	6.3V.AC	280V.DC	130V.DC	-6 V.DC	0V.	0V.	-2.2V.DC
3	6SK7GT/G	0V.	0V.	0V.	-4V.DC	0V.	130V.DC	6.3V.AC	280V.DC
4	6SF7	0V.	-1V.DC	0V.	10V.DC	-6 V.DC	40V.DC	6.3V.AC	0V.
5	6V6GT/G	0V.	6.3V.AC	280V.DC	280V.DC	0V.	210V.DC	0V.	14V.DC
6	5Y3GT/G	0V.	400V.DC	0V.	320V.AC	0V.	320V.AC	0V.	400V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7GT/G	0Ω	0Ω	0Ω	1.2MEG.	0Ω	120KΩ	.1Ω	110KΩ
2	6SA7GT/G	0Ω	.1Ω	110KΩ	120KΩ	20KΩ	.5Ω	0Ω	1.8MEG
3	6SK7GT/G	0Ω	0Ω	0Ω	725KΩ	0Ω	120KΩ	.1Ω	110KΩ
4	6SF7	0Ω	10MEG.	0Ω	3.5MEG	390KΩ	750KΩ	.1Ω	0Ω
5	6V6GT/G	INF.	.1Ω	110KΩ	110KΩ	410KΩ	4 MEG	0Ω	270Ω
6	5Y3GT/G	INF.	110KΩ	INF.	100Ω	INF.	100Ω	INF.	110KΩ

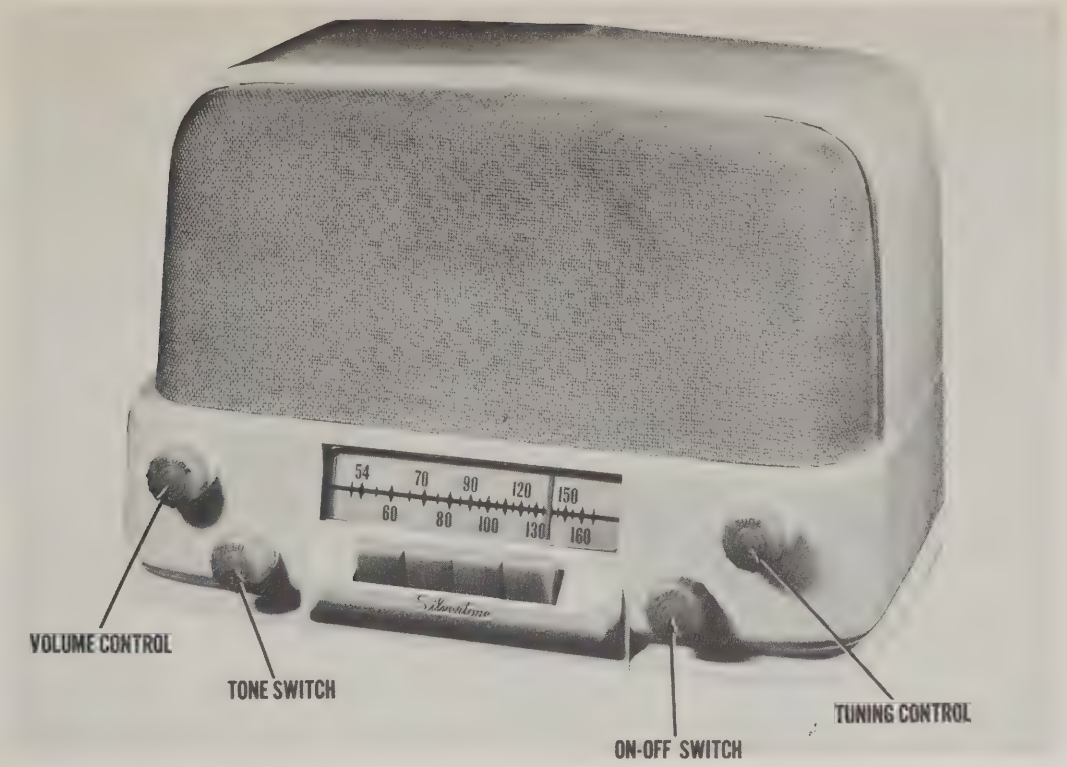
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE 476-30

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**

SILVERTONE
MODEL 7021 (CH. 101.807, 101.807 A)



SILVERTONE MODEL 7021

TRADE NAME	Silvertone, Model 7021 (Ch. 101.807, 101.807-A)
MANUFACTURER	Sears, Roebuck & Co., 925 S. Homan St. Chicago, Ill.
TYPE SET	AC-DC Operated Superheterodyne with Loop Antenna & Pushbutton Tuning
TUBES (SIX)	Types, 7B7 RF Amp., 14Q7 Converter, 7B7 IF Amp., 7C6 Det.-AVC-AF, 50A5 Power Output, 35Y4 Rectifier.
POWER SUPPLY	105-125 Volts AC-DC
TUNING RANGE—BROADCAST	535-1650KC RATING .270 Amp. @ 117V AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to Pin 6 (grid 14Q7. Low side to B-.	455KC	Tuning cap closed.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001 MFD. to reduce hum modulation.
200MMFD	High side to ext. ant. lead. Low side to chassis.	1500KC	1500KC	"	A5	Adjust for maximum output.
200MMFD	"	"	Tune for maximum output.	"	A6,A7.	" " " "

PUSHBUTTON ADJUSTMENTS

1. Turn receiver on and allow it to warm up for about 15 minutes.
2. Remove pushbutton and loosen set screw in the pushbutton lever.
3. Push pushbutton lever in all the way and tune in desired station with manual tuning control. With lever pushed in all the way tighten set screw firmly.
4. Check accuracy of setting by detuning slightly with manual tuning control and returning with pushbutton. If setting is off, repeat the last two steps.
5. Replace pushbutton.
6. To set the remaining pushbuttons follow the same procedure as outlined above.

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PARTS LIST AND DESCRIPTIONS

SILVERTONE
MODEL 7021 (Ch. 101.807, 101.807A)

TUBES

ITEM No.	USE	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	7B7	7B7	8V	
2	Converter	14Q7	14Q7	8AL	
3	IF Amp.	7B7	7B7	8V	
4	Det.-AVC-AF	7C6	7C6	8W	
5	Power Output	50A5	50A5	6AA	
6	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SILVERTONE PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	40	150	R60416	EL-340	AF88DA4	UP6CJ41	FP357	DY-305	■ Filter
B	40	150							▲ "
C	20	25							Cath. Bypass
8	.05	600		TC-15	684-05	DT6S5	TP415	S-6-05	Line Filter
9	.02	600		TC-12	684-02	DT6S2	TP412	S-6-02	Output Plate Bypass
10	.05	600		TC-15	684-05	DT6S5	TP415	S-6-05	Tone Compensation
11	.005	600		TC-25	684-005	DT6D5	TP408	S-6-005	Audio Coupling
12	.1	200		TC-1	484-.1	DT4P1	TP428	S-4-1	Line Isolation
13	.005	600		TC-25	684-005	DT6D5	TP408	S-6-005	Audio Coupling
14	.01	400		TC-11	484-01	DT4S1	TP421	S-4-01	Tone Compensation
15	.005	600		TC-25	684-005	DT6D5	TP408	S-6-005	Audio Coupling
16	.05	200		TC-15	484-05	DT4S5	TP426	S-4-05	RF Bypass Pwr. Supply
17	.05	200		TC-15	484-05	DT4S5	TP426	S-4-05	AVC Filter
18	.01	600		TC-11	684-01	DT6S1	TP410	S-6-01	Fixed Padder
19	.001	600		TC-21	684-001	DT6D1	TP404	S-6-001	Ant. Coupling
20	100	500		1FM-31	1468-0001	5W5T1	MC235	M0.5-31	Audio Plate Bypass
21	100	500		1FM-31	1468-0001	5W5T1	MC235	M0.5-31	Osc. Grid Capacitor
22	100	500		1FM-31	1468-0001	5W5T1	MC235	M0.5-31	RF Coupling

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
23	2 Meg.	1	R60430				Volume Control

RESISTORS

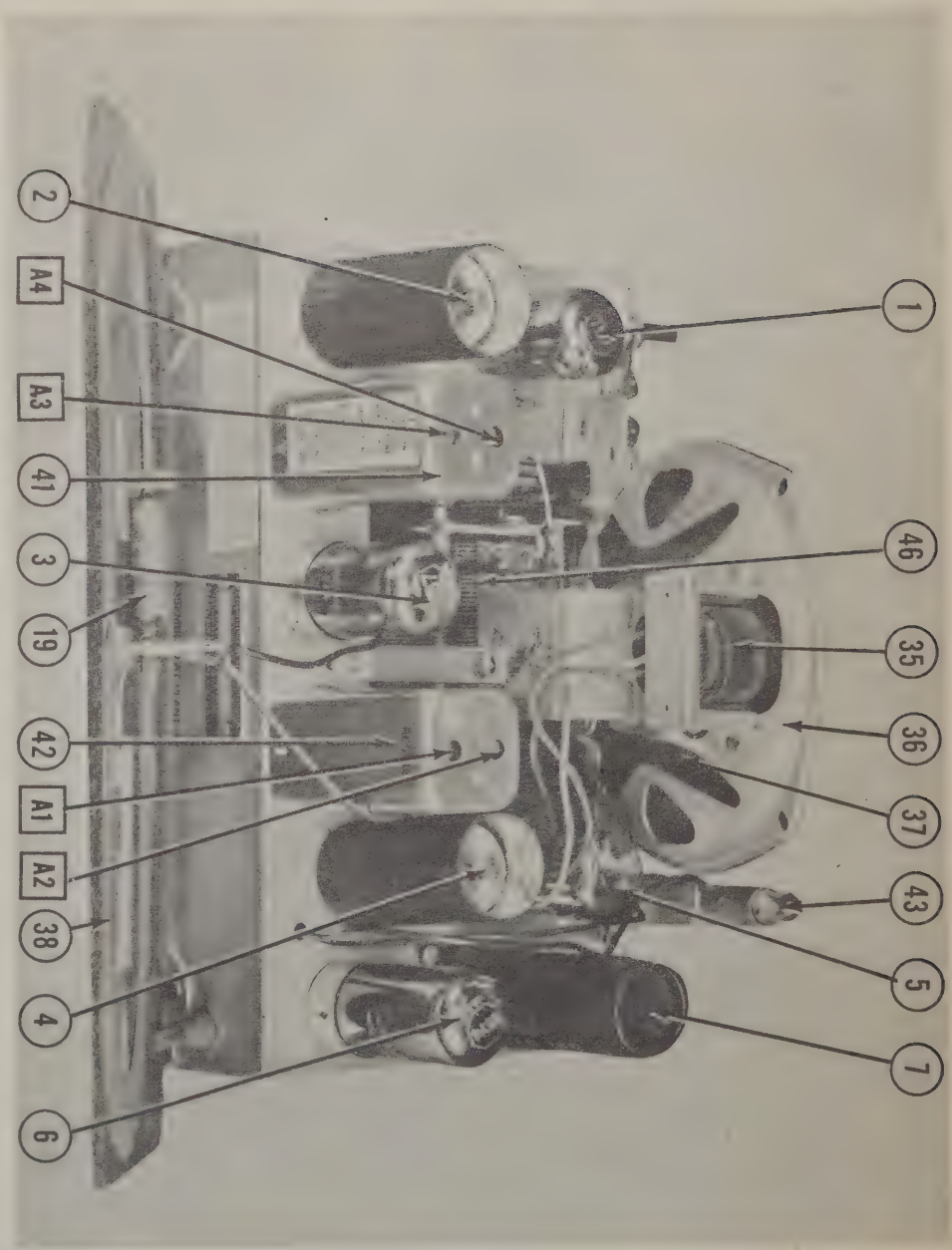
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	IRC PART No.	IDENTIFICATION CODES
24	1 Meg.	1/3		BTS-1 Meg.	Br.-Blk.-Grn. RF Grid
25	22KΩ	1/3		BTS-22K	Red-Red-Or. Oscillator Grid
26	470Ω	1/3		BTS-470	Yl.-Vi.-Br. Parasitic Suppressor-See Note 1
27	2.2 Meg.	1/3		BTS-2.2 Meg	Red-Red-Grn. AVC Network
28	47KΩ	1/3		BTS-47K	Yl.-Vi.-Or. Tone Compensation
29	4.7 Meg.	1/3		BTS-4.7 Meg	Yl.-Vi.-Grn. AF Grid
30	2.2 Meg.	1/3		BTS-2.2 Meg	Red-Red-Grn. AF Plate Load
31	470KΩ	1/3		BTS-470K	Yl.-Vi.-Yl. Output Grid
32	150Ω	1/3		BW-½-150	Br.-Grn.-Br. Output Cathode
33	1200Ω	1		BTA-1200	Br.-Red-Red Filter
34	25Ω	1	R40232	BW-1-27	Red-Grn.-Blk. Surge Limiter

Note 1-Some models may use 47Ω in this application.

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: SILVERTONE PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
35	3000Ω	3.4Ω	225Ω tapped @ 9Ω	1.0Ω	R60675	A-3876*			*Add extra filter to reduce hum level.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: SILVERTONE PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.				
36	PM	3.4Ω	R60431			
	CONE DIA.	VC DIA.				
37	5-1/8"	1/2"	R60674			

R F COILS

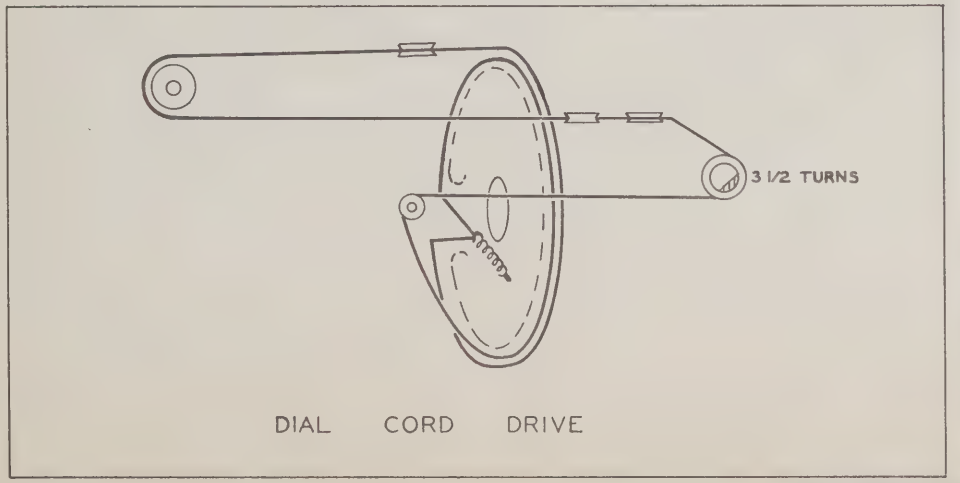
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: SILVERTONE PART No.	MEISSNER PART No.
38	Loop Ant.	.2Ω	2.3Ω	R60541	
39	RF Coil	2Ω	15Ω	R60465	
40	Osc. Coil		4.1Ω	R60448	
41	Input IF	10.5Ω	11Ω	R60417	16-6658
42	Output IF	14Ω		R60418	16-6660

DIAL LIGHT

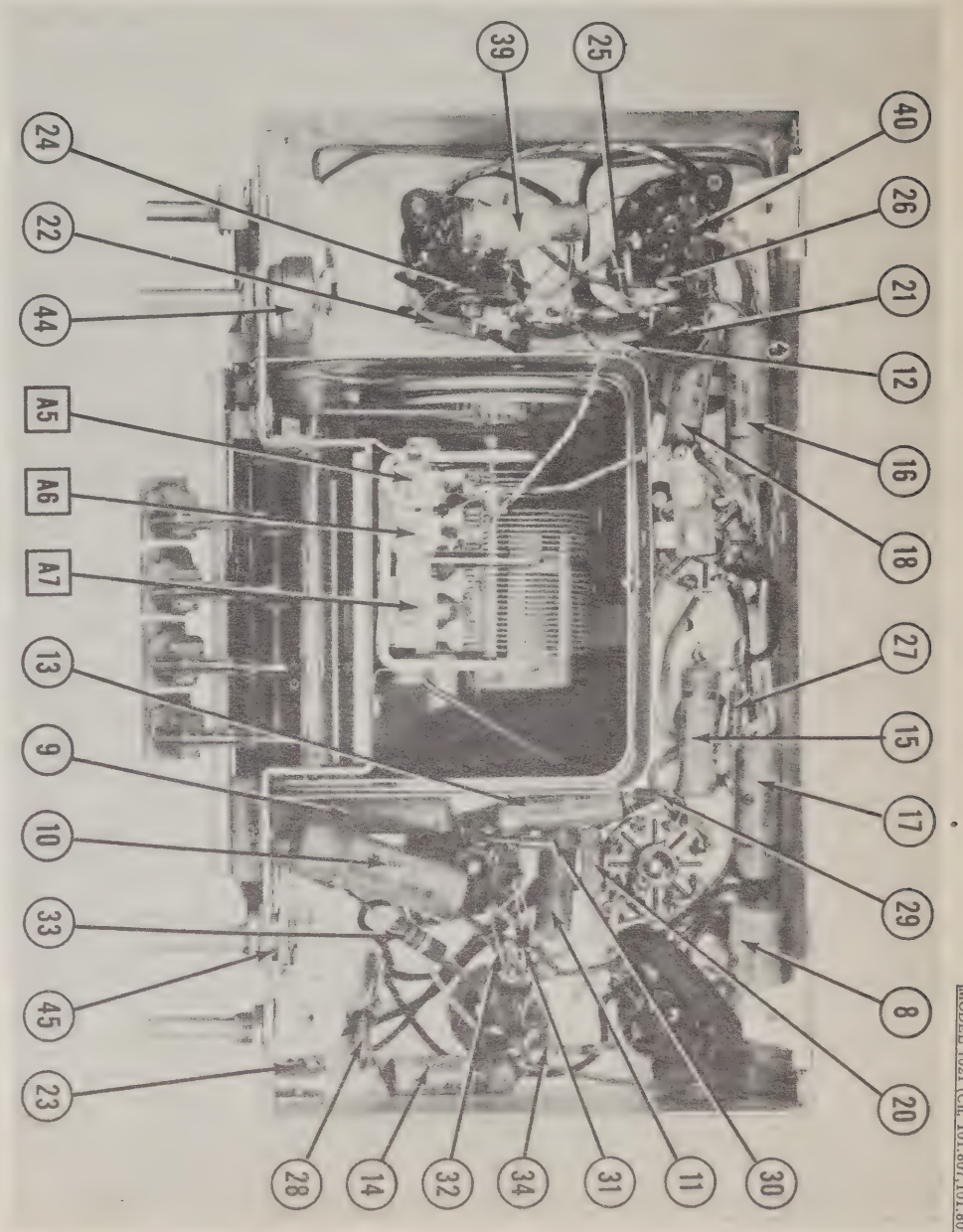
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: SILVERTONE PART No.		INSTALLATION NOTES
43	Bayonet	6-8	0.15	Brown			Type 47

MISCELLANEOUS

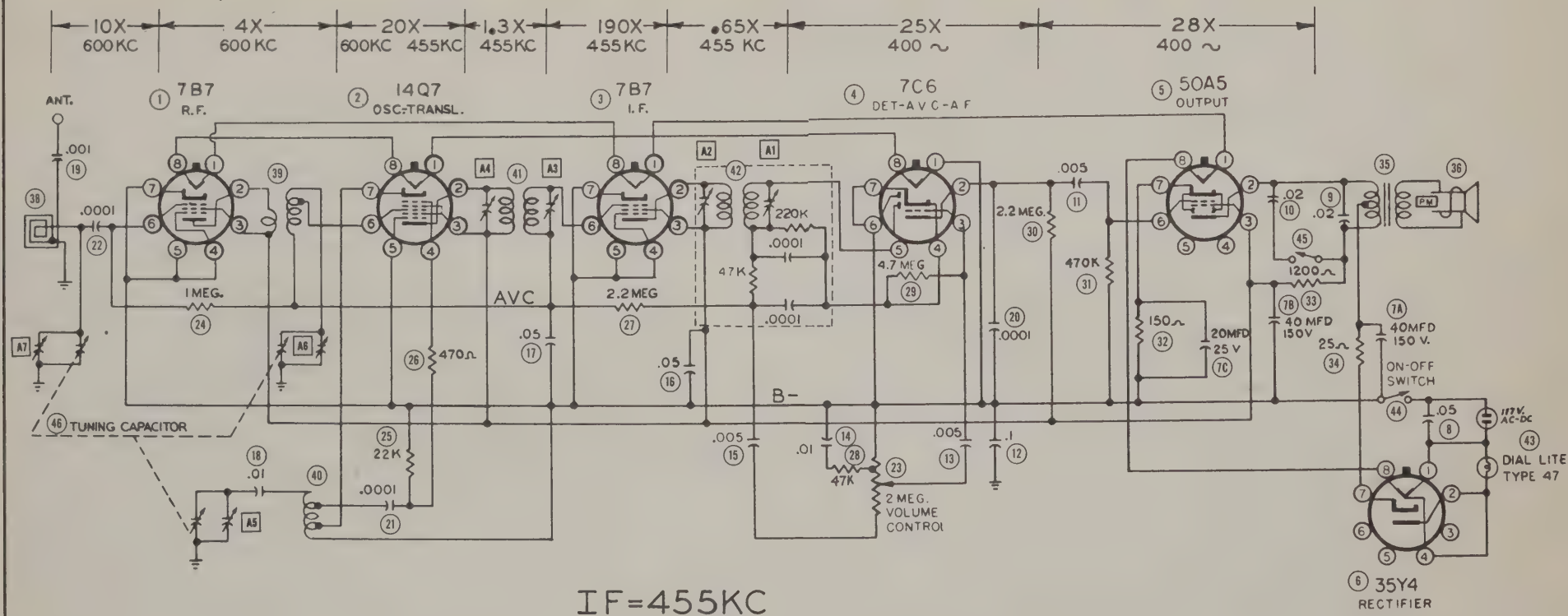
ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
44	On-Off Switch	R60432	
45	Tone Switch	R60447	
46	3 Gang Var.Cap	R60413	(17-507 MMF, 13-250MMF, 13-88MMF)



CHASSIS—BOTTOM VIEW



SILVERTONE
MODEL 7021 (Ch. 101.807, 101.807A)



IF=455KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7B7	26V.AC	80V.DC	80V.DC	0V.	0V.	-3V.DC	0V.	18V.AC
2	14Q7	6V.AC	80V.DC	80V.DC	-4 V.DC	0V.	-2V.DC	0V.	18V.AC
3	7B7	32V.AC	80V.DC	80V.DC	0V.	0V.	-.75V.DC	0V.	26V.AC
4	7C6	0V.	20V.DC	-.5V.DC	0V.	-48V.DC	0V.	0V.	6V.AC
5	50A5	32V.AC	95V.DC	80V.DC	0V.	0V.	.5V.DC	5.4V.DC	85V.AC
6	35Y4	117V.AC	113V.AC	0V.	113V.AC	0V.	0V.	117V.DC	85V.AC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7B7	24Ω	130 KΩ	130 KΩ	0Ω	0Ω	3.5MEG	0Ω	18Ω
2	14Q7	7Ω	130 KΩ	130 KΩ	22KΩ	0Ω	2.6MEG	.3Ω	18Ω
3	7B7	30Ω	130 KΩ	130 KΩ	0Ω	0Ω	2.6MEG	0Ω	24Ω
4	7C6	0Ω	3MEG.	4.5MEG.	0Ω	220KΩ	0Ω	0Ω	7Ω
5	50A5	30Ω	130KΩ	130KΩ	INF.	1.2MEG.	390 KΩ	125Ω	75Ω
6	35Y4	105Ω	100Ω	INF.	100Ω	INF	INF	130 KΩ	75Ω

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

476-31

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

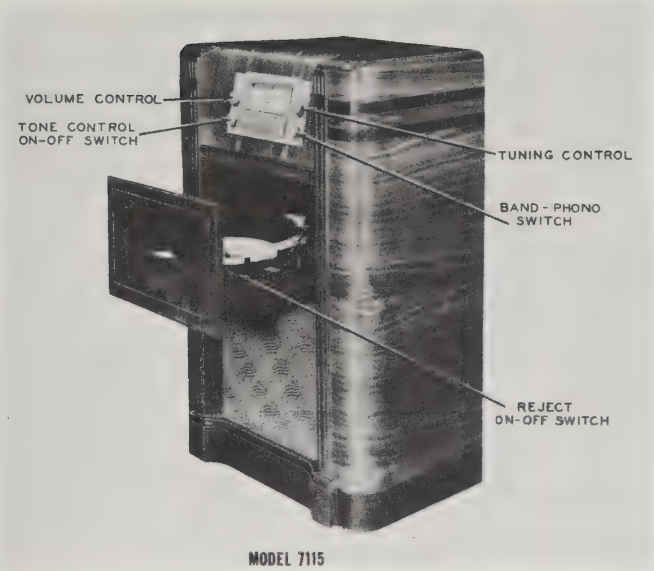
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PHOTOFACT* Folder

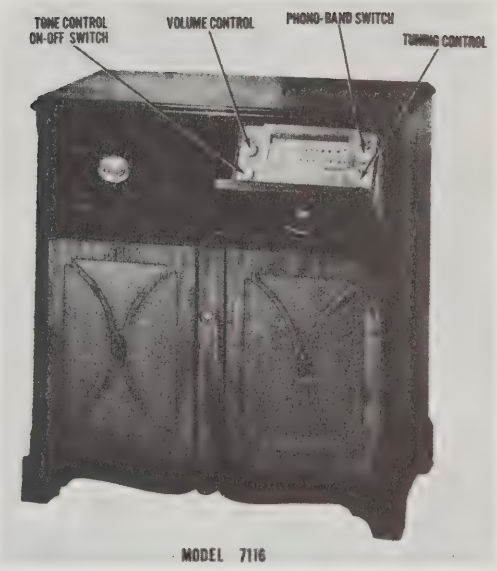
*TRADE MARK

SILVERTONE MODELS
7115 (CH. 101.825), 7116 (CH. 101.825-1A), 7117 (CH. 101.825-1B)

SILVERTONE MODELS
7115 (CH. 101.825), 7116 (CH. 101.825-1A),
7117 (CH. 101.825-1B)



MODEL 7115



MODEL 7116

TRADE NAME	Silvertone, Models 7115 (Ch. 101.825), 7116 (Ch. 101.825-1A), 7117 (Ch. 101.825-1B)
MANUFACTURER	Sears, Roebuck & Co., 925 S. Homan St., Chicago, Ill.
TYPE SET	AC Operated FM-AM Combination Phono-Radio Superheterodyne with Loop Antenna
TUBES (NINE)	Types, 7H7 Mixer, 7F8 Oscillator, 7W7 AM-FM IF Amp., 7W7 AM Det.-AVC-AF-FM 2nd IF, 7C7 FM 3rd IF, 7A6 Discriminator, 7C6 AF Amp., 7C5 Power Output, 7Z4 Rectifier.
POWER SUPPLY	105-125 Volts AC
RATING	.420 Amp. @ 117 Volts AC
TUNING RANGE - BROADCAST	530-1650KC
FM	88-109MC

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Mixer	7H7	7H7	8V	
2	Oscillator	7F8	7F8	8BW	
3	AM FM-IF Amp.	7W7	7W7	8BJ	
4	AM Det.-AVC-AF FM 2nd IF	7W7	7W7	8BJ	
5	FM 3rd IF	7C7	7C7	8V	
6	Discriminator	7A6	7A6	7AJ	
7	AF Amp.	7C6	7C6	8W	
8	Power Output	7C5	7C5	6AA	
9	Rectifier	7Z4	7Z4	5AB	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SILVERTONE PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
10A	30	300	R60730	EL-330	AF64K4A		FF331	DY-313	◓ Filter
B	30	300							■ "
C	25	25							▲ Cath. Bypass
11	10	150	R57054	UT-121	PRS150-12	BR1215	TC42	M-10-150	Disc. Cath. Bypass
12	.02	200		TC-12	484-02	DT4S2	TP423	S-4-02	Filament Bypass
13	.005	600		TC-25	684-005	DT6D5	TP408	S-6-005	Output Plate Bypass
14	.005	400		TC-25	484-005	DT6D5	TP408	S-6-005	Tone Compensation
15	.01	400		TC-11	484-01	DT4S1	TP421	S-4-01	Audio Coupling
16	.1	200		TC-1	484-.1	DT4P1	TP428	S-4-1	Audio Plate Decoup.
17	.005	400		TC-25	484-005	DT6D5	TP408	S-6-005	Audio Coupling
18	.02	200		TC-12	484-02	DT4S2	TP423	S-4-02	Tone Compensation
19	.01	400		TC-11	484-01	DT4S1	TP421	S-4-01	Audio Coupling
20	.02	200		TC-12	484-02	DT4S2	TP423	S-4-02	FM 3rd IF Screen Bypass
21	.1	200		TC-1	484-.1	DT4P1	TP428	S-4-1	FM 3rd IF Grid Filter
22	.02	200		TC-12	484-02	DT4S2	TP423	S-4-02	AM Det. Screen Bypass
23	.02	200		TC-12	484-02	DT4S2	TP423	S-4-02	AM Det. Plate Decoup.
24	.02	200		TC-12	484-02	DT4S2	TP423	S-4-02	RF Bypass Pwr. Supp.
25	.02	200		TC-12	484-02	DT4S2	TP423	S-4-02	AM Det. Cath. Bypass
26	.02	200		TC-12	484-02	DT4S2	TP423	S-4-02	IF Plate Decoup.
27	.02	200		TC-12	484-02	DT4S2	TP423	S-4-02	IF Screen Bypass
28	.02	200		TC-12	484-02	DT4S2	TP423	S-4-02	IF Cath. Bypass
29	.02	200		TC-12	484-02	DT4S2	TP423	S-4-02	AVC Filter
30	.05	200		TC-15	484-05	DT4S5	TP426	S-4-05	Mixer Screen Bypass
31	.05	100		TC-15	484-05	DT4S5	TP426	S-4-05	Mixer Cath. Bypass
32	.005	400		TC-25	484-005	DT6D5	TP408	S-6-005	Osc. Plate Bypass
33	.05	200		TC-15	484-05	DT4S5	TP426	S-4-05	Ant. Coupling
34	100	500		1FM-31	1468-0001	5W5T1	MC235	MO.5-31	Audio Plate Bypass
35	750	500							De-emphasis
36	200	500		1FM-32	1468-0002	5W5T2	MC236	MO.5-32	Mixer Screen Bypass
37	100	500		1FM-31	1468-0001	5W5T1	MC235	MO.5-31	Osc. Grid Capacitor
38	100	500		1FM-31	1468-0001	5W5T1	MC235	MO.5-31	Osc. Coupling
39	50	500		1FM-45	1468-00005	5W5Q5	MC225	MO.5-45	FM Ant. Coupling
40	50	500		1FM-45	1468-00005	5W5Q5	MC225	MO.5-45	" " "

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
41A	1 Meg.	1	R60758	MR53	D13-137	M-63-2	Tone Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 41A per instructions.
C	Switch		" "	M26	41	SW-A	" " " " "
42A	1 Meg.	1	R60733	MRT440	D13-137X	T-109	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 42A per instructions.

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	IRC PART No.	IDENTIFICATION CODES
43	470Ω	½		BTS-470	Yl.-Vi.-Br. Mixer Cathode
44	22KΩ	½		BTS-22K	Red-Red-Or. FM Oscillator Grid
45	22KΩ	½		BTS-22K	Red-Red-Or. FM Oscillator Plate Load
46	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
47	100Ω	½		BTS-100K	Br.-Blk.-Yl. Mixer Screen Dropping
48	47KΩ	½		BTS-47K	Yl.-Vi.-Or. AM Oscillator Grid
49	10KΩ	½		BTS-10K	Br.-Blk.-Or. AM Oscillator Plate Load
50	56Ω	½		BW-½-56	Grn.-Blue-Blk. Mixer Cathode-AM
51	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
52	10KΩ	½		BTS-10K	Br.-Blk.-Or. Mixer Plate Dropping
53	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
54	1000Ω	½		BTS-1000	Br.-Blk.-Red IF Decoupling
55	1.5 Meg.	½		BTS-1.5 Meg.	Br.-Grn.-Grn. AVC Network
56	150Ω	½		BW-½-150	Br.-Grn.-Br. 1st IF Cathode
57	150Ω	½		BW-½-150	Br.-Grn.-Br. 2nd IF Grid-FM
58	22KΩ	½		BTS-22K	Red-Red-Or. 1st IF Screen Dropping
59	1000Ω	½		BTS-1000	Br.-Blk.-Red 1st IF Plate Decoupling
60	330KΩ	½		BTS-330K	Or.-Or.-Yl. Diode Load
61	150Ω	½		BW-½-150	Br.-Grn.-Br. 2nd IF Cathode
62	100KΩ	½		BTS-100K	Br.-Blk.-Yl. 2nd IF Screen Bleeder
63	10KΩ	½		BTS-10K	Br.-Blk.-Or. 2nd IF Screen Dropping
64	1000Ω	½		BTS-1000	Br.-Blk.-Red 2nd IF Plate Decoupling
65	22KΩ	½		BTS-22K	Red-Red-Or. 3rd IF Grid
66	15KΩ	½		BTS-15K	Br.-Grn.-Or. 3rd IF Screen Bleeder
67	18KΩ	1		BTA-18K	Br.-Gray-Or. 3rd IF Screen Dropping
68	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. Series Recorder
69	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Recorder Shunt
70	33KΩ	½		BTS-33K	Or.-Or.-Or. Tone Compensation
71	15 Meg.	½		BTS-15 Meg.	Br.-Grn.-Blue AF Grid
72	330KΩ	½		BTS-330K	Or.-Or.-Yl. AF Plate Load
73	220KΩ	½		BTS-220K	Red-Red-Yl. AF Plate Decoupling
74	220Ω	½		BW-½-220	Red-Red-Br. Output Cathode
75	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
76	47Ω	½		BW-½-47	Yl.-Vi.-Blk. Parasitic Suppressor
77	2200Ω	1		BTA-2200	Red-Red-Red Filter
78	2200Ω	1		BTA-2200	Red-Red-Red Filter

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: SILVERTONE PART No.	STANCOR PART No.	THORDARSON PART No.	
79	117V AC @ .42A	440V CT @ .067A	6.4V AC @ 3.5A		R60737		T22R02	

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: SILVERTONE PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
80	5000Ω	3.5Ω	285Ω tapped @ 7Ω	.9Ω	R60785	A-3877*			*Add extra filter to reduce hum level.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: SILVERTONE PART No.	JENSEN PART No.		INSTALLATION NOTES
81	FIELD PM	VC IMP. 3.5Ω	R61035	ST-119† Mod. P10-T		†Replace output transformer to match 8Ω voice coil.
82	CONE DIA. 9-3/4"	VC DIA. 5/8"	R61036			

VOLTAGE AND RESISTANCE TAKEN IN BROADCAST POSITION.

TONE CONTROL SET AT MAXIMUM TREBLE.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7H7	0V.	160V.DC	85V.DC	2.5V.DC	0V.	-.8V.DC	2.5V.DC	6.3V.AC
2	7F8	-6.8V.DC	6.3V.AC	140V.DC	0V.	0V.	-.2V.DC	0V.	-.2V.DC
3	7W7	0V.	187V.DC	125V.DC	2.2V.DC	0V.	0V.	2.2V.DC	6.3V.AC
4	7W7	6.3V.AC	-.2V.DC	-.2V.DC	0V.	0V.	-.6V.DC	0V.	0V.
5	7C7	0V.	-.2V.DC	-.2V.DC	0V.	0V.	-.6V.DC	0V.	6.3V.AC
6	7A6	0V.	1V.DC	.8V.DC	0V.	0V.	0V.	.8V.DC	6.3V.AC
7	7C6	0V.	100V.DC	-1V.DC	0V.	0V.	0V.	0V.	6.3V.AC
8	7C5	0V.	205V.DC	187V.DC	0V.	150V.DC	0V.	8.2V.DC	6.3V.AC
9	7Z4	6.3V.AC	0V.	215V.AC	0V.	0V.	215V.AC	210V.DC	0V.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7H7	0Ω	160KΩ	280KΩ	500Ω	0Ω	2.2MEG	500Ω	.1Ω
2	7F8	38KΩ	.1Ω	160KΩ	.2Ω	0Ω	40KΩ	0Ω	20KΩ
3	7W7	0Ω	160KΩ	180KΩ	150Ω	0Ω	850KΩ	150Ω	.1Ω
4	7W7	.1Ω	25KΩ	28KΩ	150Ω	0Ω	300KΩ	150Ω	0Ω
5	7C7	0Ω	14KΩ	14KΩ	0Ω	0Ω	19KΩ	0Ω	.1Ω
6	7A6	0Ω	58KΩ	INF.	INF.	0Ω	.1Ω	INF.	.1Ω
7	7C6	0Ω	700KΩ	15 MEG.	0Ω	0Ω	0Ω	0Ω	.1Ω
8	7C5	0Ω	160KΩ	160KΩ	820KΩ	1.2MEG.	390KΩ	200Ω	.1Ω
9	7Z4	.1Ω	INF.	200Ω	INF.	INF.	200Ω	160KΩ	0Ω

VOLTAGE AND RESISTANCE IN FM POSITION.

TONE CONTROL SET AT MAXIMUM TREBLE.

VOLTAGE READINGS

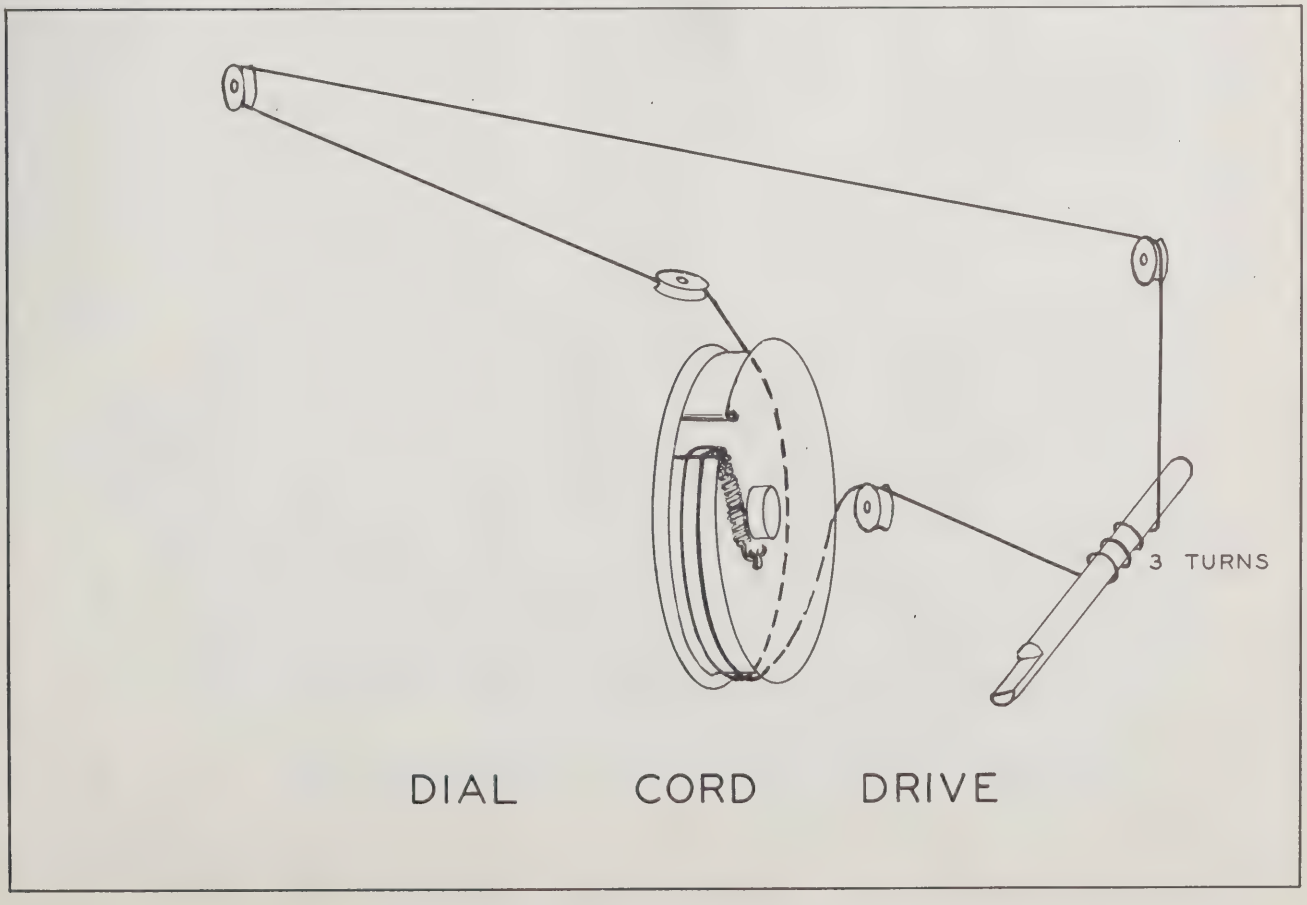
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7H7	0V.	145V.DC	65V.DC	2.5V.DC	0V.	0V.	2.5V DC	6.3V.AC
2	7F8	0V.	6.3V.AC	-.2V.DC	0V.	0V.	95V.DC	0V.	-.2V.DC
3	7W7	0V.	187V.DC	113V.DC	2.2V.DC	0V.	0V.	2.2V.DC	6.3V.AC
4	7W7	6.3 V.AC	152V.DC	113V.DC	2.2V.DC	0V.	0V.	2.2V.DC	0V.
5	7C7	0V.	55V.DC	55V.DC	0V.	0V.	-.2V.DC	0V.	6.3V.AC
6	7A6	0V.	14V.DC	14V.DC	0V.	0V.	0V.	14V.DC	6.3V.AC
7	7C6	0V.	95V.DC	-1V.DC	0V.	0V.	0V.	0V.	6.3V.AC
8	7C5	0V.	205V.DC	150V.DC	0V.	140V.DC	0V.	8.2V.DC	6.3V.AC
9	7Z4	6.3V.AC	0V.	215V.AC	0V.	0V.	215V.AC	210V.DC	0V.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7H7	0Ω	38KΩ	125KΩ	500Ω	0Ω	0Ω	500Ω	.1Ω
2	7F8	38KΩ	.1Ω	INF.	0Ω	0Ω	40KΩ	0Ω	20KΩ
3	7W7	0Ω	28KΩ	45KΩ	150Ω	0Ω	850KΩ	150Ω	.1Ω
4	7W7	.1Ω	29KΩ	38KΩ	150Ω	0Ω	52KΩ	150Ω	0Ω
5	7C7	0Ω	14KΩ	14KΩ	0Ω	0Ω	19KΩ	0Ω	.1Ω
6	7A6	0Ω	58KΩ	4MEGΩ	INF.	0Ω	.1Ω	4MEGΩ	.1Ω
7	7C6	0Ω	590KΩ	15MEG.	0Ω	0Ω	0Ω	0Ω	.1Ω
8	7C5	0Ω	28KΩ	28KΩ	820KΩ	230KΩ	390KΩ	200Ω	.1Ω
9	7Z4	.1Ω	INF.	200Ω	INF.	INF.	200Ω	28KΩ	0Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt. AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



DIAL CORD DRIVE

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer 3/4 inch from left edge of painted dial backplate. Do not attempt alignment of this receiver unless a frequency modulated signal generator, cathode ray oscilloscope and vacuum tube voltmeter (or sensitive DC voltmeter) are available. For the approximate FM-IF alignment use the vacuum tube voltmeter connected as indicated below as an output indicator. Use the oscilloscope for all final FM adjustments. Use 60~ synchronized sweep from the signal generator on X-Axis (horizontal). When aligning AM IF and RF sections keep volume control at maximum volume and output of signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to pin 6 (grid) 7H7. Low side to chassis. (Remove cover from RF section.)	10.7MC	FM	Low frequency end of dial.	VTVM connected across 3rd IF grid filter resistor 65.	A1,A2, A3,A4, A5,A6.	Adjust for maximum output with minimum output from signal generator.
.1 MFD.	"	455KC	BC	"	Output meter across voice coil	A7,A8, A9,A10	"
200MMFD	High side to ext. ant lead. Low side to chassis.	1500KC	"	5-9/16" from left edge of painted dial backplate.	"	A11	"
200MMFD	"	"	"	Tune for maximum output.	"	A12	Switch to ext. ant. and adjust for maximum output
300Ω	High side to Pin 6 (grid) 7H7. Low side to chassis.	10.7MC (300KC deviated freq. modulation)	FM	High freq. end of dial.	Y axis (vertical) amplifier of scope connected across resistor 65 in parallel with 5KΩ. Connect the sweep output of generator to X axis (horizontal) amplifier.	A1,A2, A3,A4, A5,A6,	Connect a 50KΩ resistor in series with Y axis lead of scope. Adjust for symmetry of pattern on scope with gain of vertical amplifier at maximum and output of signal generator at minimum. Then restore receiver to normal operation by removing scope, 5KΩ and 50KΩ resistors.
"	"	"	"	"	Connect Y axis (vertical) amplifier in series with 50KΩ across cap. 35.	A13	Adjust for maximum vertical amplitude.
"	"	"	"	"	"	A14, A15	Adjust until center of scope pattern becomes a straight line diagonally across scope screen. Repeak A13, A14, A15 for symmetry and maximum vertical deflection.
	Connect 120Ω resistor in series with each signal generator lead and connect to FM ant. terminals.	109MC (300KC deviated freq. modulation)	"	6-5/32" from left edge of painted dial backplate.	Y axis (vertical) amplifier of scope connected across resistor 65 in parallel with 5KΩ. Connect the sweep output of generator to X axis (horizontal) amplifier.	A16	Replace cover on RF section. Adjust for pattern of Step 5. If two such points are found use the one obtained with minimum capacity of A16.
	"	106MC (300KC deviated freq. modulation)	"	Tune for maximum vertical deflection of pattern of Step 5.	"	A17, A18	Adjust for maximum vertical deflection.

PUSHBUTTON ADJUSTMENTS

Allow the receiver to remain on for ten or fifteen minutes before making the push-button adjustments.

1. Pull the push-button off of its lever.
2. Loosen (turn counter-clockwise) the screw in the push-button lever, one to one and one half turns, using a small screwdriver.
3. Using the Station Selector Knob, accurately tune in the station to be set up.
4. Push the push-button lever all the way in. If the station becomes detuned, retune it. Then tighten the screw while the lever is firmly depressed and the station accurately tuned.

   CAUTION: Be sure the screw has been securely tightened.
5. Replace the push-button on its lever. When doing so, be sure the slot in the push-button and the lever tab are in line, and apply pressure on the button directly over the lever tab; this will prevent jamming of the button on the lever.
6. Check for accuracy by detuning the station and retuning with that push-button. If the setting is not accurate, repeat the foregoing procedure.
7. Follow the same procedure for each of the remaining buttons.

PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA SILVERTONE PART No.	REPLACEMENT DATA MEISSNER PART No.	
83	Loop Ant.		0Ω	R57037		(Model 7115)
84	BC Loop Load Coil	0Ω	2.3Ω	R60726		
85	FM Preselector Coil		0Ω	R60727		
86	FM MixerCoil		0Ω	R60746		
87	BC Osc. Coil		2.5Ω	R60746		
88	FM Osc. Coil		0Ω	R60751		
89	Choke Coil		0Ω	R61628		
90A	Input IF (BC)	7Ω §	7Ω	R60734		90A & 90B in same can.
B	" " (FM)		.1Ω			
91A	Inter IF (FM)	12Ω §		R60735		91A & 91B in same can.
B	Inter IF (BC)					
92	Output IF (FM)	1.5Ω	1.5Ω	R61442		
93	Discriminator Trans.	1.5Ω	.8Ω	R60736		

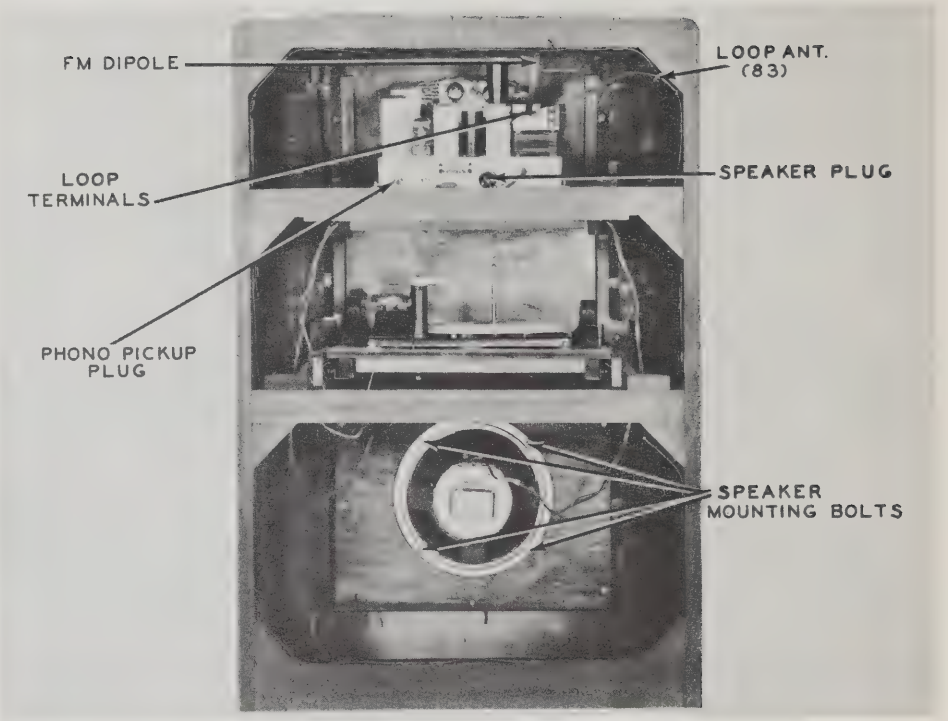
§Includes both primaries

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA SILVERTONE PART No.		INSTALLATION NOTES
94	Bayonet	6-8	0.15	Brown			Type 47
95	"	6-8	0.15	"			"

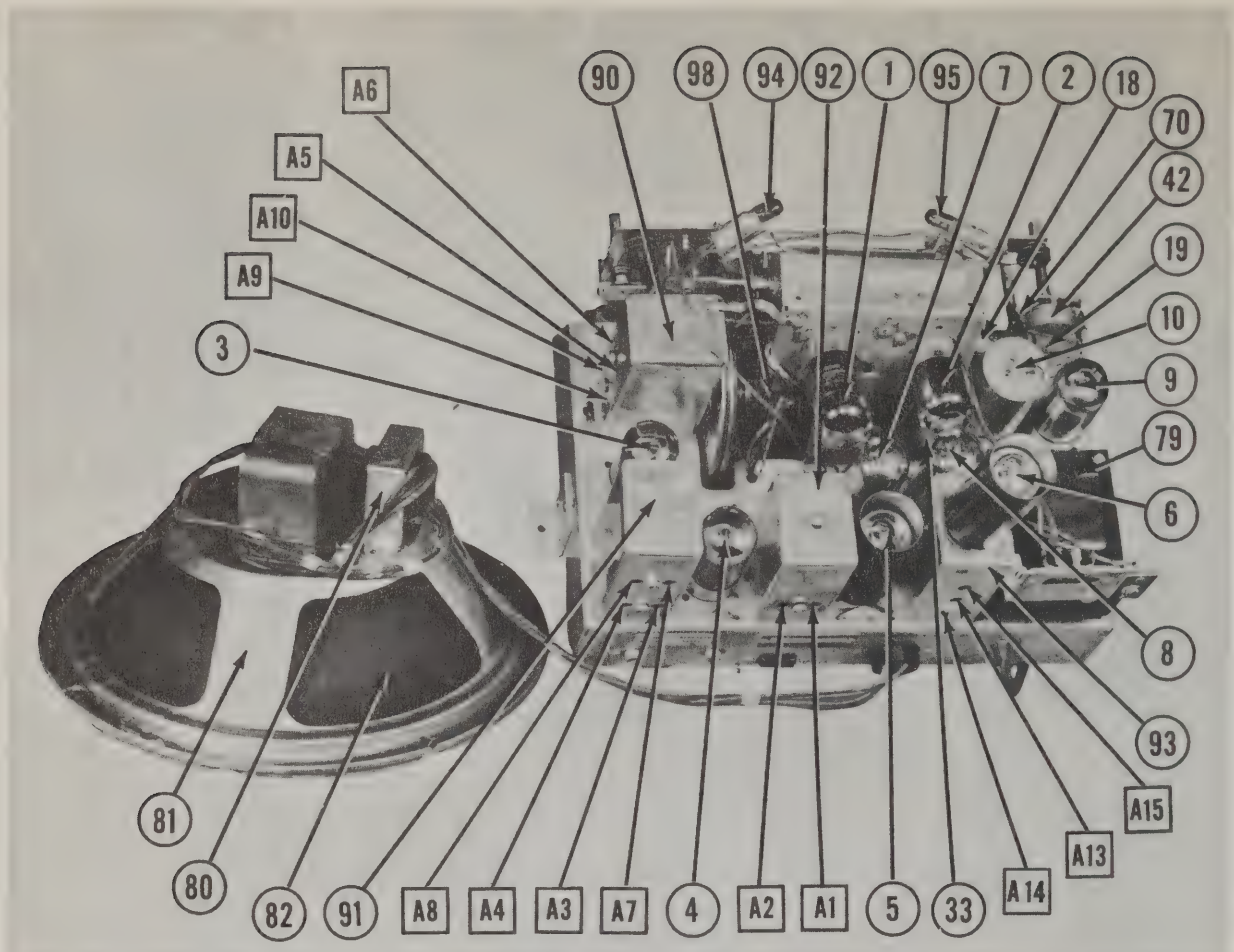
MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
96	Switch	R60980	Band - Phono
97	"	R60963	AM Antenna Selector
98	Tuning Capacitor	R60725	5 Section
	Dial Glass	R60729	(Model 7115)
	Dial Pointer	R61007	(Model 7115)
A16	Trimmer	R61629	FM Osc. Adjustment



DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type control knobs from front of cabinet.
2. Remove phono pick-up plug from chassis.
3. Remove phono motor plug from chassis.
4. Remove speaker plug from chassis.
5. Remove loop antenna and FM antenna plugs from chassis.
6. Remove four chassis mounting bolts. Remove chassis.
7. Remove four hex nuts holding speaker. Remove speaker.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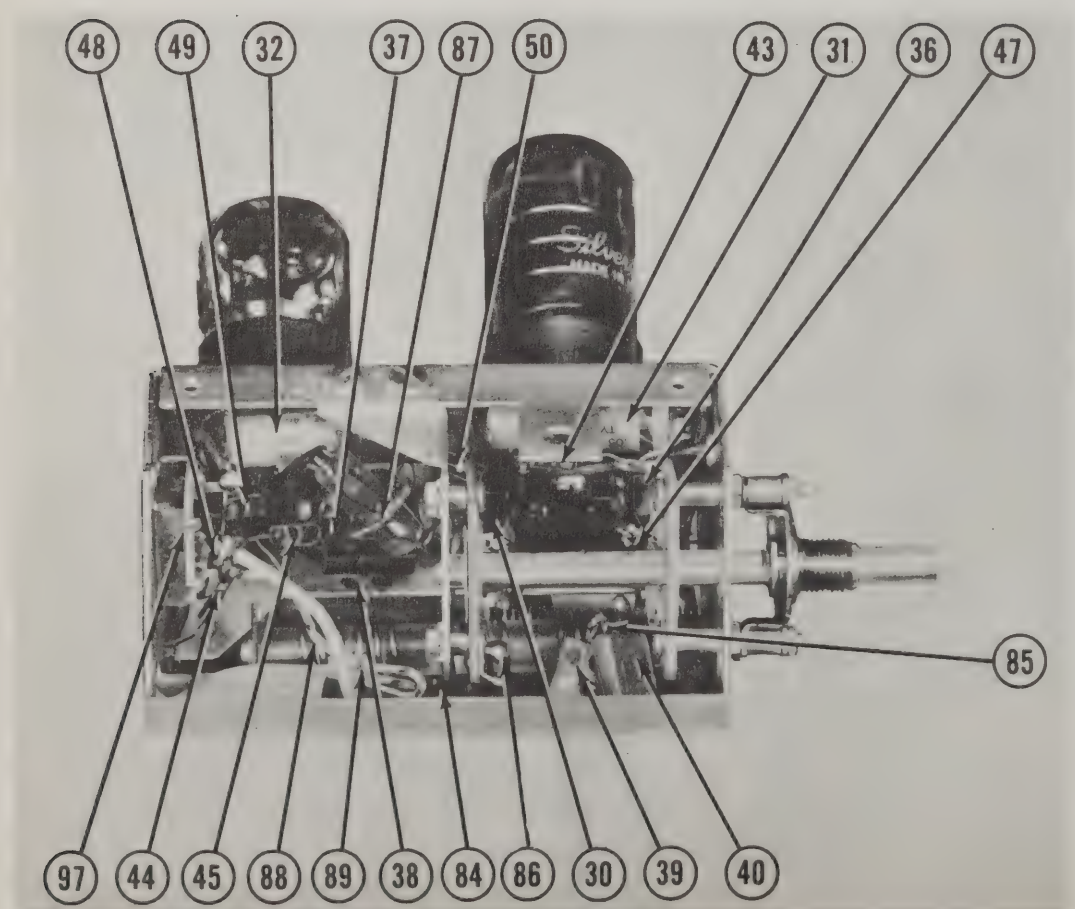
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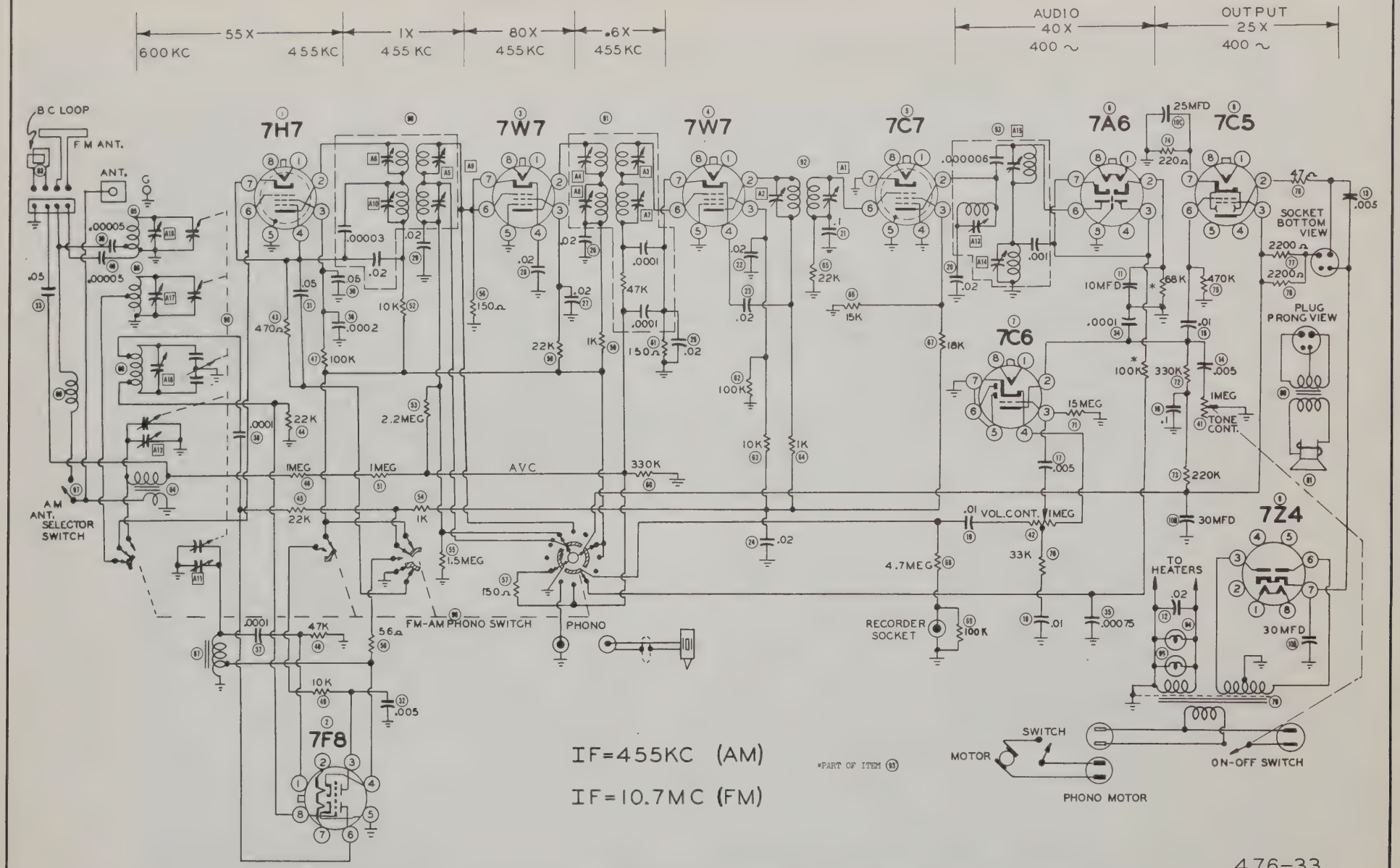
MODELS 7115 (CH. 101.825),
7116 (CH. 101.825-1A), 7117 (CH. 101.825-1B)

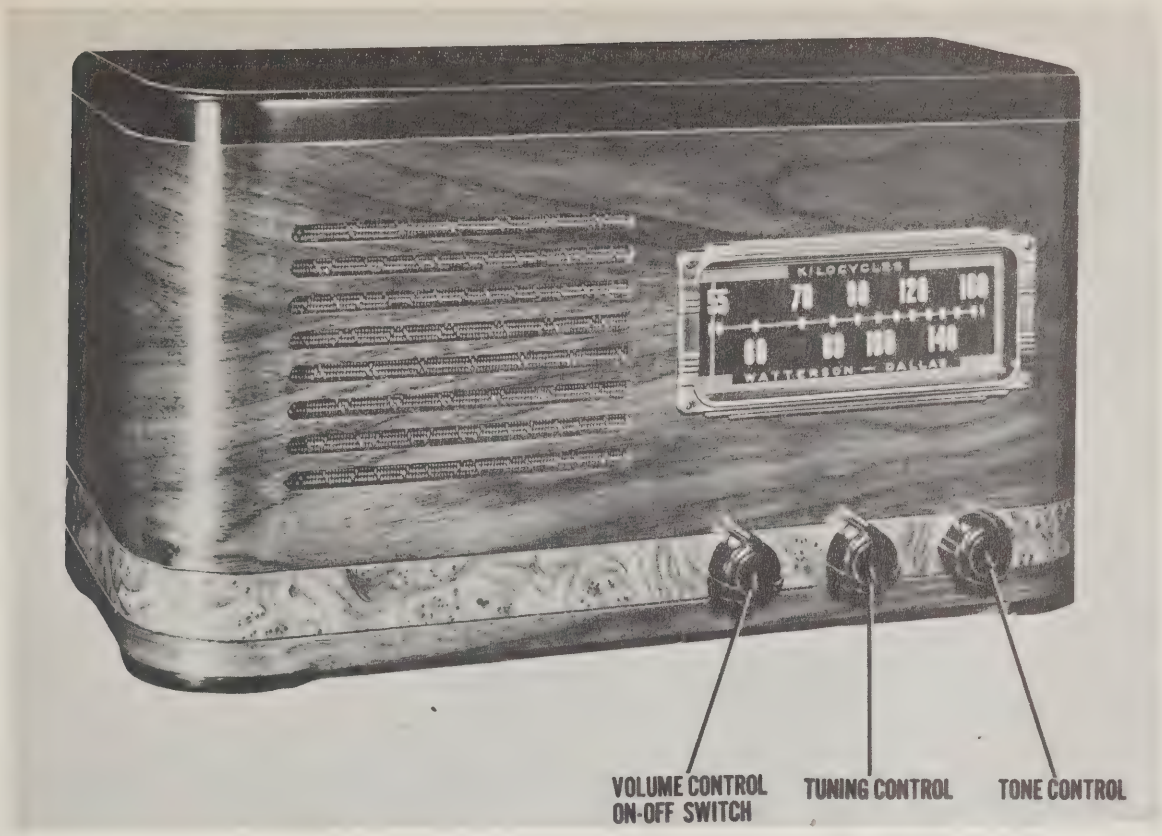


476-33

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. Diode load resistor (Item 60) shorted with 3 volt bias.

WATTERSON
MODEL 4790



WATTERSON
MODEL 4790

WATTERSON MODEL 4790

TRADE NAME	Watterson, Model 4790
MANUFACTURER	Watterson Radio Mfg.,Corp., 2700 Swiss Ave., Dallas, Texas
TYPE SET	AC-DC Operated Superheterodyne-Self Contained Loop Antenna
TUBES (SIX)	Types, 12SK7GT RF Amp., 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC
TUNING RANGE—BROADCAST	540-1650 RATING .240 Amp. @ 117 Volts

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and chassis. Volume control at maximum position. Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to front stator of tuning cap. Low side to chassis.	455KC	Tuning cap. open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD to reduce hum modulation.
200MMFD.	High side to ext. ant. lead. Low side to chassis.	1500KC	1500KC	"	A5	Adjust for maximum output.
200MMFD.	"	1400KC	Tune for maxi- output.	"	A6	" " " "
200MMFD.	"	600KC	"	"	A7	Rock variable and adjust for maximum output. Repeat adjustments A5, A6.

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PARTS LIST AND DESCRIPTIONS

WATTERSON MODEL 4790

TUBES

ITEM No.	USE	REPLACEMENT DATA: WATTERSON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	12SK7GT	12SK7GT	8N	
2	Converter	12SA7GT	12SA7GT	8AD	
3	IF Amp.	12SK7GT	12SK7GT	8N	
4	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: WATTERSON PART No.	REPLACEMENT DATA: SPRAGUE PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: MALLORY PART No.	REPLACEMENT DATA: SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7	30	150		UT-301	PRS150-30	BR3015	TC47	M-30-150	Filter
8A	40	150		EL-343	AF86D4A	UP6CJ41	FP357	DY-306	■ Filter
B	30	150							▲ "
C	25	25							Cath. Bypass
9	.05	400		TC-15	484-05	DT4S5	TP426	S-4-05	Line Filter
10	.02	400		TC-12	484-02	DT4S2	TP423	S-4-02	Output Plate Bypass
11	.05	400		TC-15	484-05	DT4S5	TP426	S-4-05	Audio Coupling
12	.006	600		TC-26	684-006	DT6D6	TP409	S-6-006	Tone Compensation
13	.001	600		TC-21	684-001	DT6D1	TP404	S-6-001	" "
14	.003	600		TC-23	684-003	DT6D3	TP406	S-6-003	Audio Coupling
15	.05	400		TC-15	484-05	DT4S5	TP426	S-4-05	IF Cath. Bypass
16	.05	400		TC-15	484-05	DT4S5	TP426	S-4-05	AVC Filter
17	.05	400		TC-15	484-05	DT4S5	TP426	S-4-05	RF Bypass Pwr. Supp.
18	.002	600		TC-22	684-002	DT6D2	TP405	S-6-002	Ext. Ant. Coupling
19	250	500		1FM-325	1468-00025	5W5T25	MC240	MO.5-325	Audio Plate Bypass
20	250	500		1FM-325	1468-00025	5W5T25	MC240	MO.5-325	Diode Filter
21	100	500		1FM-31	1468-0001	5W5T1	MC235	MO.5-31	" "
22	50	500		1FM-45	1468-00005	5W5Q5	MC225	MO.5-45	Osc. Grid Capacitor
23	100	500		1FM-31	1468-0001	5W5T1	MC235	MO.5-31	RF Coupling

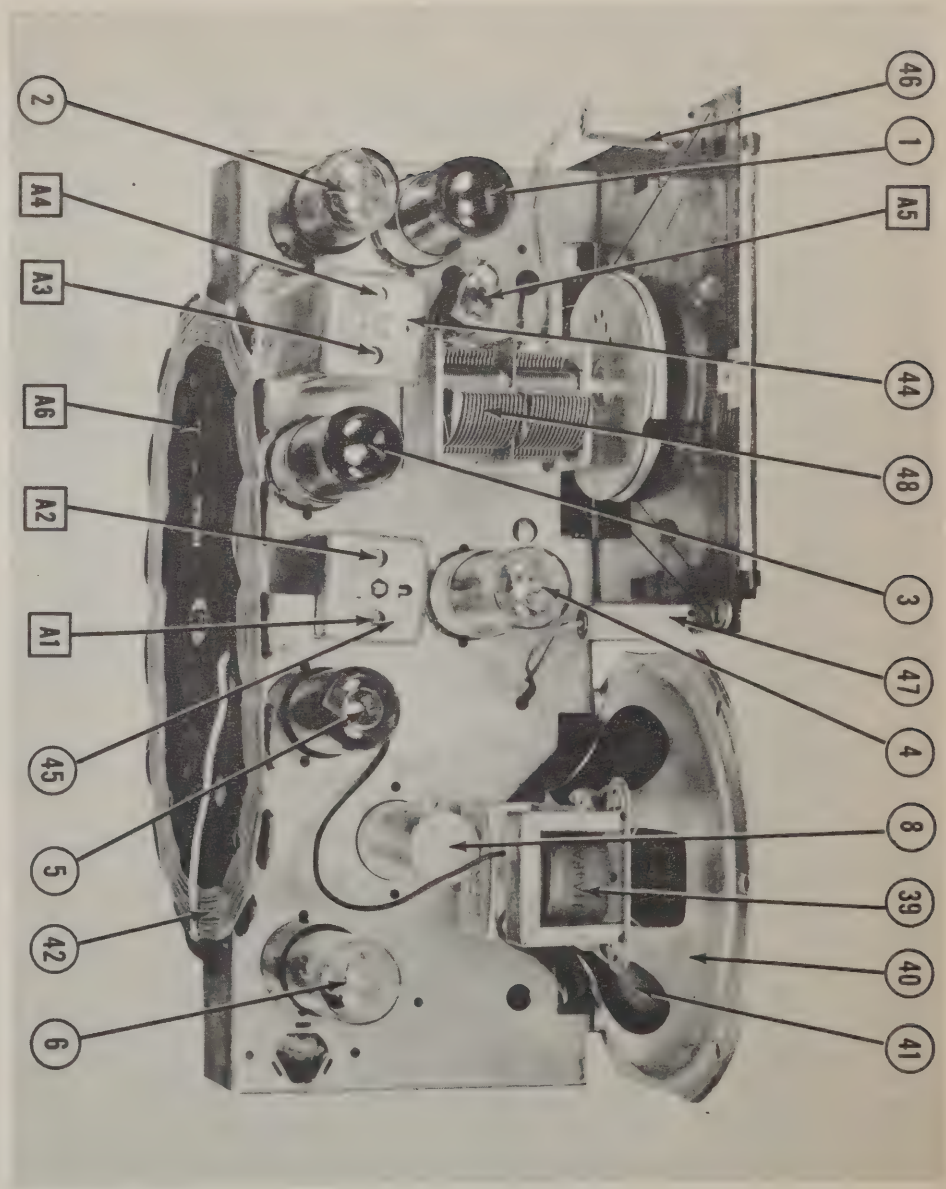
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: WATTERSON PART No.	REPLACEMENT DATA: MALLORY PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	INSTALLATION NOTES
24A	500KΩ	1		MR48	D13-133	M-60-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 24A per instructions
C	Switch			M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: WATTERSON PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
25	220Ω	½		BTS-2200	Red-Red-Red RF Plate Load
26	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Converter Grid
27	20KΩ	½		BTS-22K	Red-Blk.-Or. Oscillator Grid
28	1000Ω	½		BTS-1000	Br.-Blk.-Red IF Cathode
29	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
30	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Diode RF Filter
31	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
32	220KΩ	½		BTS-220K	Red-Red-Yl. AF Plate Load
33	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
34	220Ω	½		BW-½-220	Red-Red-Br. Output Grid
35	150Ω	½		BW-½-150	Br.- Grn.-Br. Output Cathode
36	1000Ω	1		BTA-1000	Br.-Blk.-Red Filter
37	220Ω	1		BW-1-220	Red-Red-Br. Filter
38	22Ω	1		BW-1-22	Red-Red-Blk. Rectifier Ballast

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		WATTERSON PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
39	1900Ω	3.4Ω	180Ω	.8Ω		A-3876	T22845		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			WATTERSON PART No.	JENSEN PART No.		
	FIELD	VC IMP.				
40	PM	3.4Ω	22W22			
	CONE DIA.	VC DIA.				
41	6-1/8"	1/2"	CONE HAS SPECIAL ADJUSTMENT FEATURE-ORDER FROM MANUFACTURER.			

R F COILS

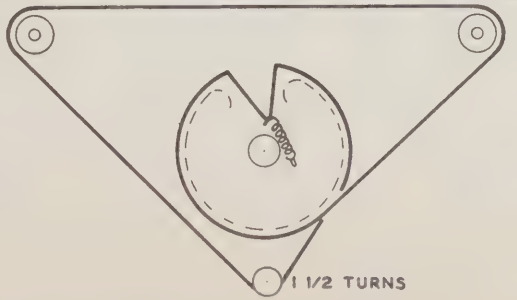
ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	WATTERSON PART No.	MEISSNER PART No.
42	Loop Ant.	0Ω	1Ω	3W31	
43	Osc. Coil	1Ω	4.3Ω	3W28	14-1040
44	Input IF	24.5Ω	23.5Ω	3W20	16-6658
45	Output IF	26Ω	19.5Ω	3W21	16-6660

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					WATTERSON PART No.		
46	Bayonet	6-8	0.15	Brown			Type 47
47	"	6-8	0.15	"			" "

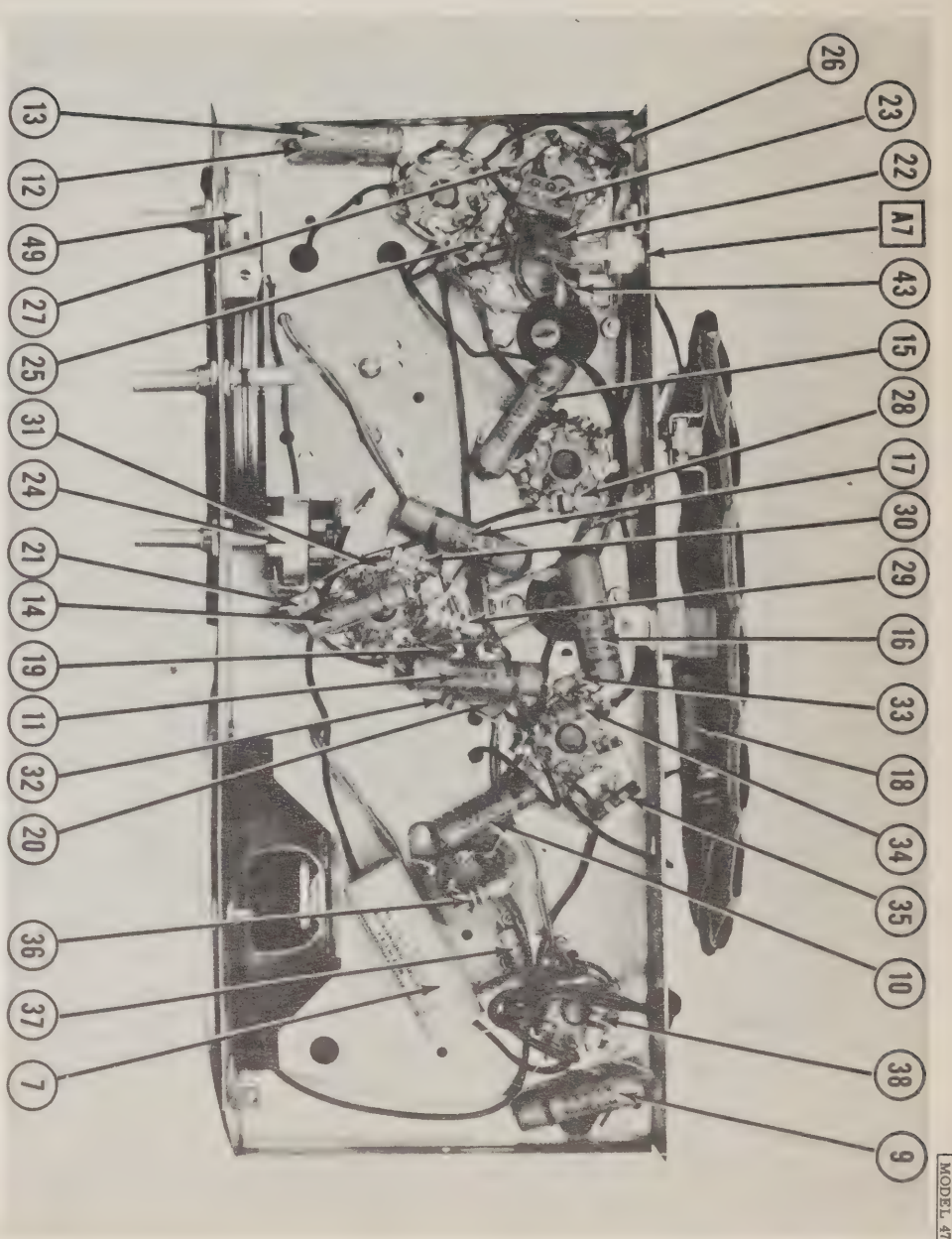
MISCELLANEOUS

ITEM No.	PART NAME	WATTERSON PART No.	NOTES
48	2 Gang Var. Cap	7WM-1961	(15-489 MMF each section)
49	Tone Switch		3 Position

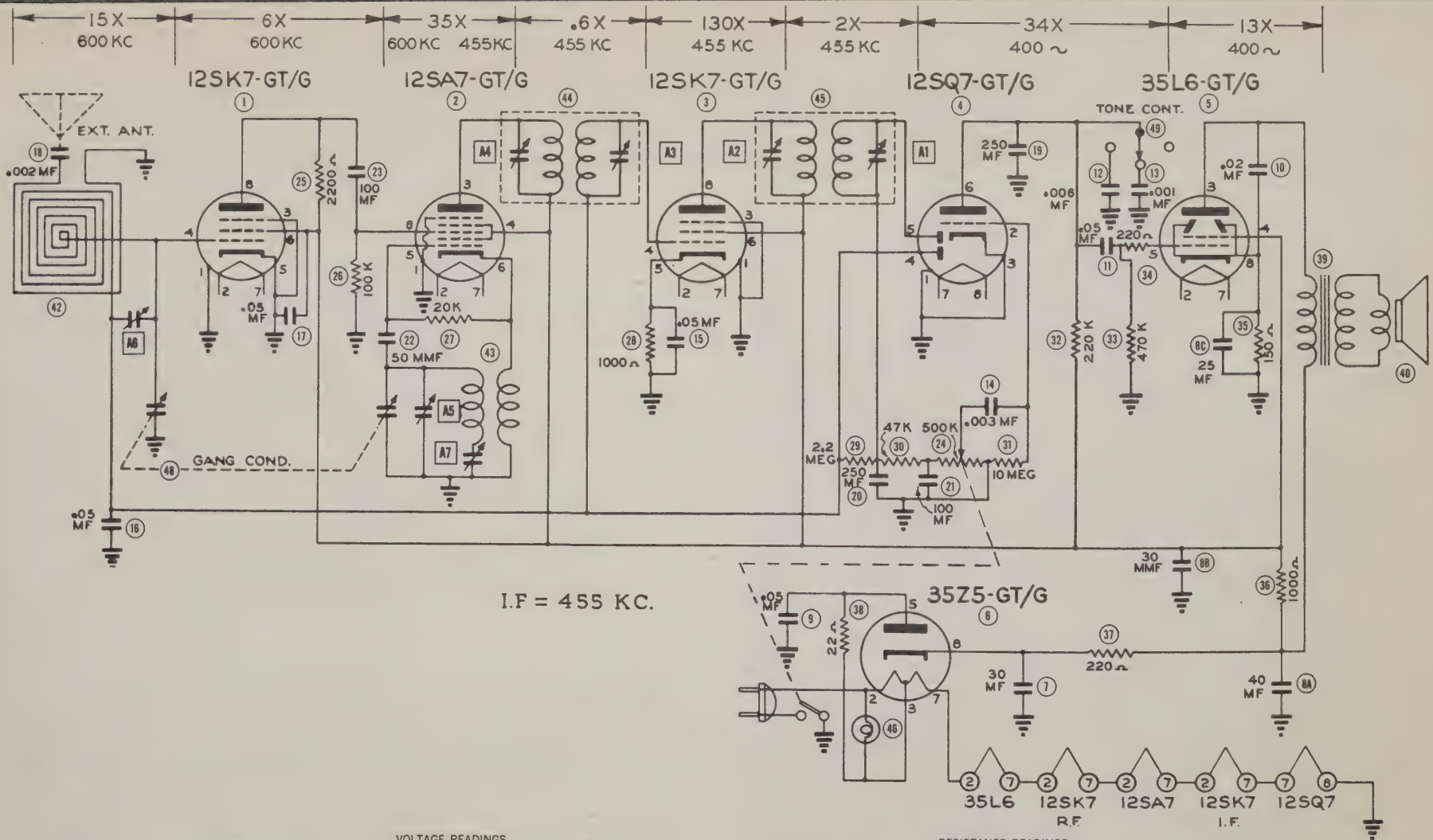


DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



WATTERSON MODEL 4790



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	0V	36 VAC	0V	-.45VDC	0V	85VDC	47VAC	65VDC
2	12SA7GT	0V	36 VAC	85VDC	85VDC	-5.5VDC	0V	24VAC	0V
3	12SK7GT	0V	12 VAC	3.8VDC	-.45VDC	3.8VDC	85VDC	24VAC	85VDC
4	12SQ7GT	0V	-.75VDC	0V	-.45VDC	-.35VDC	65VDC	0V	12VAC
5	35L6GT	0V	85VAC	103VDC	85VDC	0V	0V	47VAC	4.9VDC
6	35Z5GT	113VAC	117VAC	110VAC	0V	109VAC	0V	85VAC	120VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	0Ω	34Ω	0Ω	2.3MEG.	0Ω	100KΩ	45Ω	100KΩ
2	12SA7GT	0Ω	34Ω	100KΩ	100KΩ	18KΩ	.5Ω	24Ω	85KΩ
3	12SK7GT	0Ω	12Ω	1000Ω	2.3MEG	1000Ω	100KΩ	24Ω	100 KΩ
4	12SQ7GT	0Ω	10MEG.	0Ω	2.3MEG	500 KΩ	320KΩ	0Ω	12Ω
5	35L6GT	INF.	75Ω	100KΩ	100KΩ	480KΩ	480KΩ	45Ω	145Ω
6	35Z5GT	98Ω	100Ω	96Ω	INF.	112Ω	0Ω	75Ω	100KΩ

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

476-34

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

WATTERSON
MODEL RC-4581

WATTERSON
MODEL RC-4581

WATTERSON MODEL RC-4581

TRADE NAME	Watterson, Model RC-4581
MANUFACTURER	Watterson Radio Mfg. Co., 2700 Swiss Ave., Dallas, Texas
TYPE SET	AC Operated Combination Phono-Radio Superheterodyne with Loop Antenna
TUBES (FIVE)	Types, 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC
TUNING RANGE—BROADCAST	540-1650KC RATING .230 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer parallel with base of dial. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and chassis. Volume control at maximum position. Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of rear section of tuning capacitor. Low side to chassis.	455KC	Tuning capacitor fully open	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001 MFD. to reduce hum modulation.
200MMF.	High side to ext. ant. Low side to chassis.	1400KC	1400KC (Third mark from high freq. end)	"	A5	Adjust for maximum output.
200MMF.	"	"	Tune for maximum output.	"	A6	" " " "
200MMF.	"	600KC	"	"	A7	Rock tuning capacitor and adjust for maximum output. Repeat last three steps.

DISASSEMBLY INSTRUCTIONS

1. Loosen set screws on the four control knobs. Remove knobs.
2. Remove nut from control on top. Remove control.
3. Remove three Phillips head chassis mounting screws.
4. Remove screw holding loop antenna. Remove radio-chassis and loop ant.
5. Remove phono-motor and phono-pickup plug from chassis.
6. Unsolder phono-motor leads from pins 5 and 7 of plug.

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PARTS LIST AND DESCRIPTIONS

WATTERSON MODEL RC-4581

TUBES

ITEM No.	USE	REPLACEMENT DATA: WATTERSON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SA7GT	12SA7GT	8AD	
2	IF Amp.	12SK7GT	12SK7GT	8N	
3	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: WATTERSON PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	30	150	19W16	TA-330	PRSA150-40-	BRD3315	2N513	M-2x30-150	Filter - Red
B	30	150			40				" - Red
7	30	150	19W5	UT-301	PRS150-30	BR3015	TC47	M-30-150	"
8	10	50	19W18	TA-510	PRS50-10	BR105	TC32	M-10-50	Cath. Bypass
9	.1	400	5W13	TC-1	484-.1	DT4P1	TP428	S-4-1	Line Filter
10	.1	400	5W13	TC-1	484-.1	DT4P1	TP428	S-4-1	Tone Compensation
11	.02	400	5W7	TC-12	484-02	DT4S2	TP423	S-4-02	Output Plate Bypass
12	.01	400	5W21	TC-11	484-01	DT4S1	TP421	S-4-01	Audio Coupling
13	.005	400	5W2	TC-25	484-005	DT6D5	TP407	S-6-005	" "
14	.05	400	5W9	TC-15	484-05	DT4S5	TP426	S-4-05	IF Cath. Bypass
15	.02	400	5W7	TC-12	484-02	DT4S2	TP423	S-4-02	Tone Compensation
16	.05	400	5W9	TC-15	484-05	DT4S5	TP426	S-4-05	AVC Filter
17	.002	600		TC-22	684-002	DT6D2	TP405	S-6-002	Ext. Ant. Coupling
18	250	500	6W2	1FM-325	1468-00025	5W5T25	MC240	MO.5-325	Audio Plate Bypass
19	250	500	6W2	1FM-325	1468-00025	5W5T25	MC240	MO.5-325	Tone Compensation
20	250	500	6W2	1FM-325	1468-00025	5W5T25	MC240	MO.5-325	IF Bypass Diode
21	500	500	6W3	1FM-35	1468-0005	5W5T5	MC245	MO.5-35	Osc. Grid Capacitor

CONTROLS

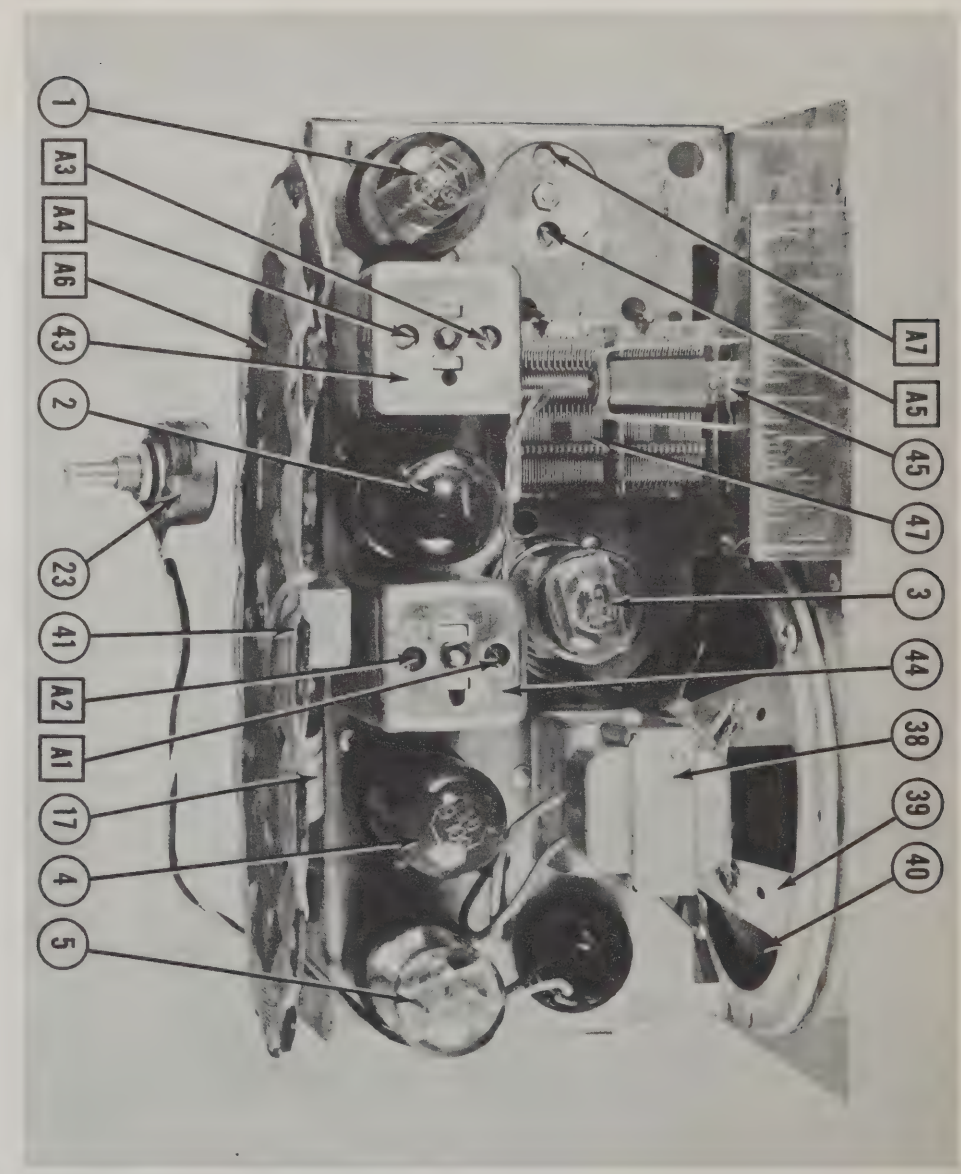
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: WATTERSON PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
22A	500KΩ	1	13W1	MR48	D13-133	M-60-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 22A per instructions
C	Switch			M26	41	SW-A	" " " "
23A	300KΩ	1	13W3	UM149	D13-130	M-55-S	Tone Control
B	Shaft			Not Req.	A	Not Req.	Attach to 23A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: WATTERSON PART No.	IRC PART No.	IDENTIFICATION CODES
24	20KΩ	½	9W6	BTS-22K	Red-Blk.-Or. Oscillator Grid
25	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. AVC Network-See Note 1
26	2200Ω	½	9W30	BTS-2200	Red-Red-Red IF Cathode-See Note 3
27	2200Ω	½	9W30	BTS-2200	Red-Red-Red IF Cathode-See Note 3
28	47KΩ	½	9W53	BTS-47K	Yl.-Vi.-Or. Diode RF Filter
29	20KΩ	½	9W6	BTS-22K	Red-Blk.-Or. Tone Compensation
30	10 Meg.	½	9W63	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
31	200KΩ	½	9W62	BTS-220K	Red-Blk.-Yl. AF Plate Load
32	500KΩ	½	9W59	BTS-470K	Grn.-Blk.-Yl. Output Grid
33	150Ω	½	9W20	BW-½-150	Br.-Grn.-Br. Output Cathode
34	2200Ω	1	9W30	BTA-2200	Red-Red-Red Filter
35	220Ω	1	9W47	BW-1-220	Red-Red-Br. Filter
36	25Ω	½	9W61	BW-½-27	Red-Grn.-Blk. Rectifier Ballast
37	250KΩ	½		BTS-270K	Red-Grn.-Yl. Series Phono-See Note 2

Note 1 - Some models use 2.2 Meg. in this application. IRC replacement BTS-2.2 Meg.
Note 2 - Some models use 100KΩ in this application. IRC replacement BTS-100K.
Note 3 - Some models use a 1000Ω resistor in place of Nos. 26 & 27.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		WATTERSON PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
38	2100Ω	3.5Ω	200Ω	.8Ω		A-3876*	T22S45*		*Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			WATTERSON PART No.	JENSEN PART No.		
39	FIELD PM	VC IMP. 3.5Ω		ST-105 Mod. P5-X		
40	CONE DIA. 4-5/8"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

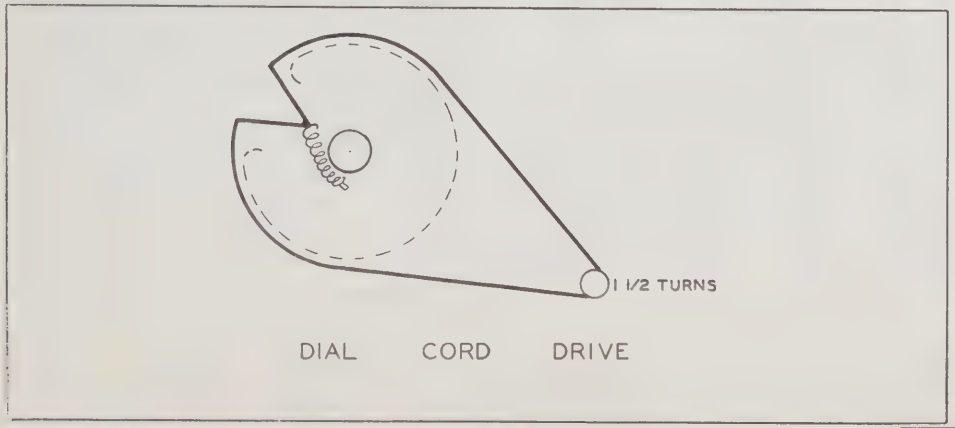
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	WATTERSON PART No.	MEISSNER PART No.	
41	Loop Ant.	0Ω	1Ω	3W31		
42	Osc. Coil	.5Ω	3.5Ω	3W30	14-1040	
43	Input IF	24.5Ω	23.5Ω	3W20	16-6658	
44	Output IF	26Ω	19.5Ω	3W21	16-6660	

DIAL LIGHT

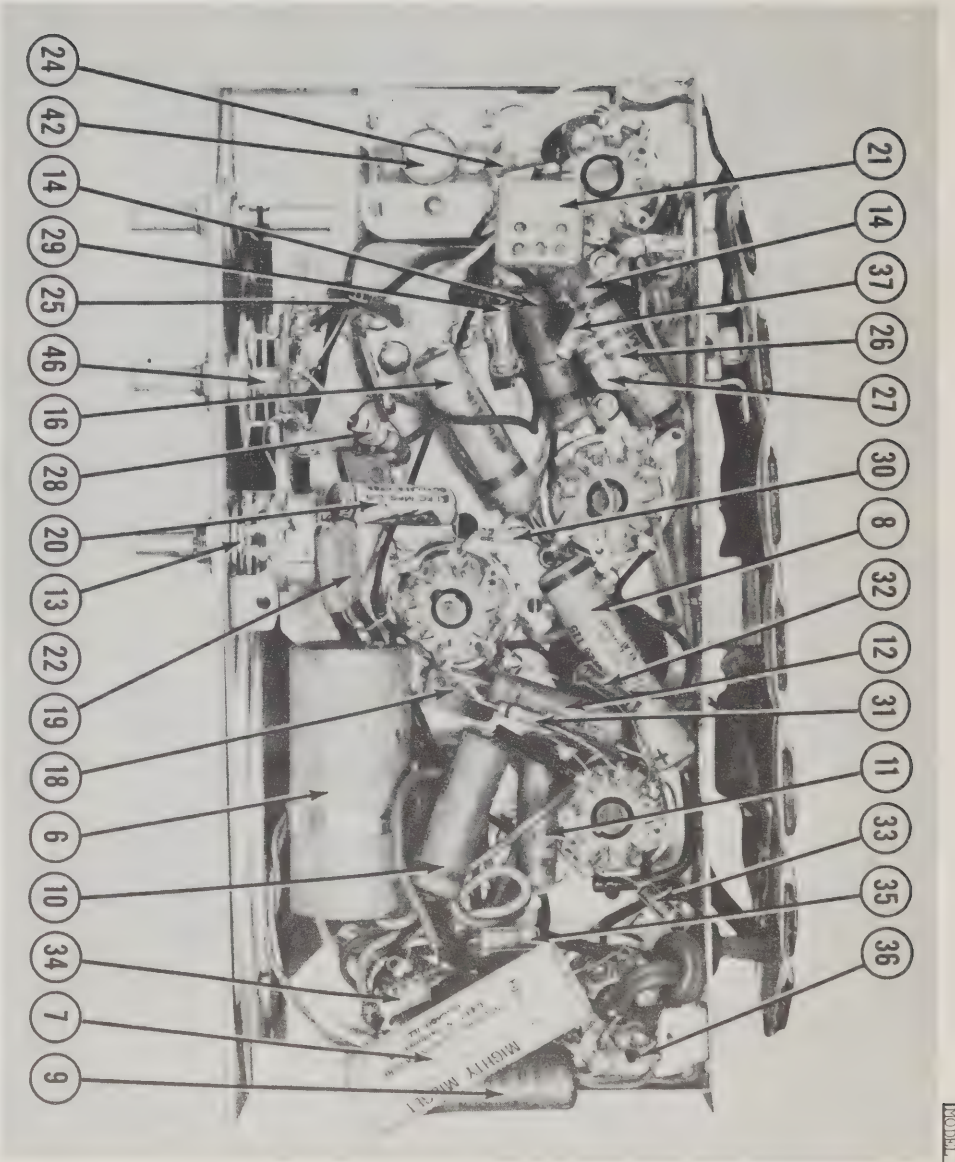
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					WATTERSON PART No.		
45	Bayonet	6-8	0.15	Brown	26W2		Type 47

MISCELLANEOUS

ITEM No.	PART NAME	WATTERSON PART No.	NOTES
46	Switch	11W3	Radio-Phono (2 Pole-2 Position)
47	2 Gang Var. Cap.	7WM-1961	(15-489 MMF each section)

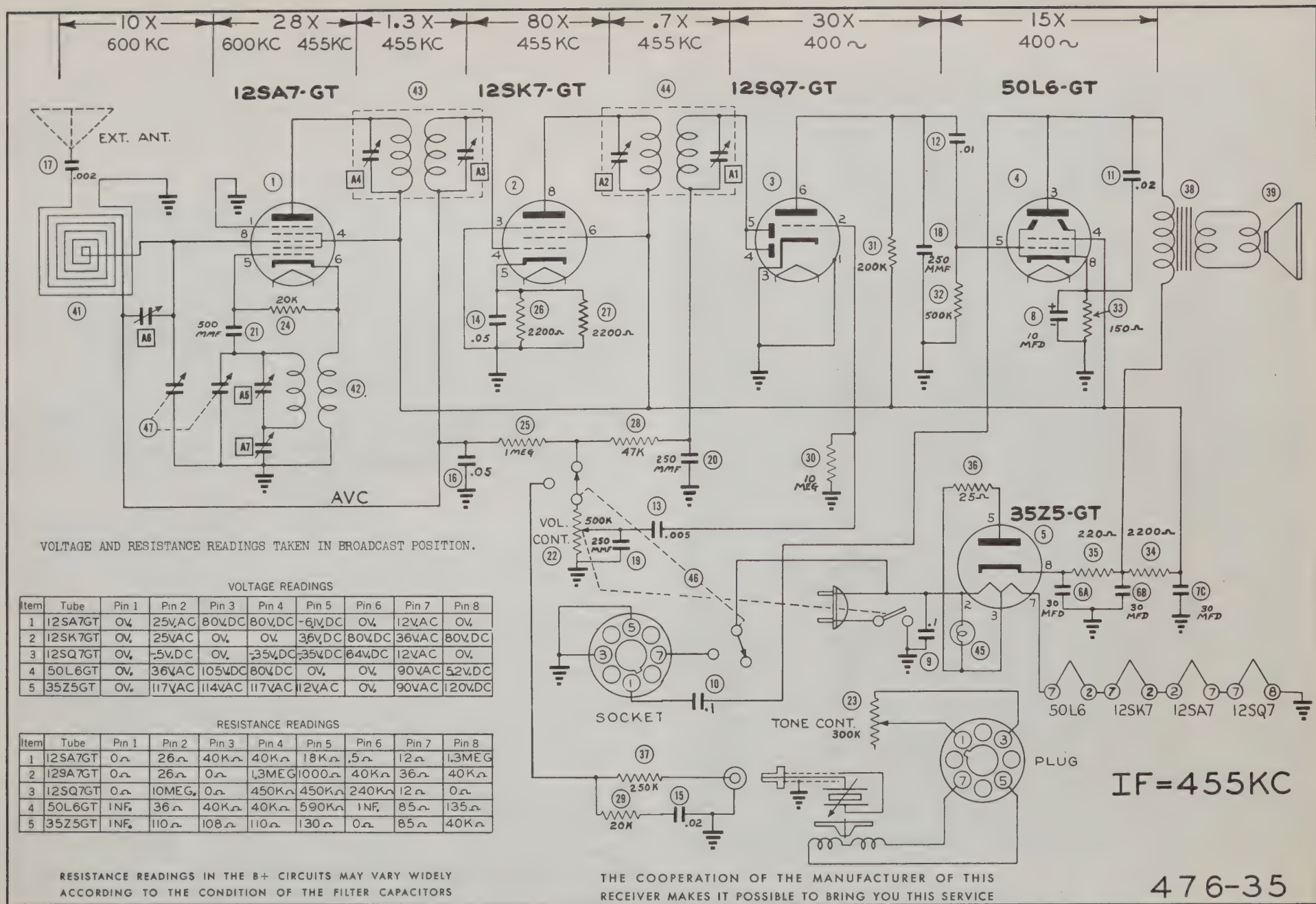


CHASSIS—BOTTOM VIEW



WATTERSON
MODEL RC-458

WATTERSON
MODEL RC-458



VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7GT	0V.	25V.AC	80V.DC	80V.DC	-6.1V.DC	0V.	12V.AC	0V.
2	12SK7GT	0V.	25V.AC	0V.	0V.	3.6V.DC	80V.DC	36V.AC	80V.DC
3	12SQ7GT	0V.	-5V.DC	0V.	-35V.DC	-35V.DC	64V.DC	12V.AC	0V.
4	50L6GT	0V.	36V.AC	105V.DC	80V.DC	0V.	0V.	90V.AC	5.2V.DC
5	35Z5GT	0V.	117V.AC	114V.AC	117V.AC	12V.AC	0V.	90V.AC	120V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7GT	0Ω	26Ω	40KΩ	40KΩ	18KΩ	.5Ω	12Ω	1.3MEG
2	12SA7GT	0Ω	26Ω	0Ω	1.3MEG	1000Ω	40KΩ	36Ω	40KΩ
3	12SQ7GT	0Ω	10MEG.	0Ω	450KΩ	450KΩ	240KΩ	12Ω	0Ω
4	50L6GT	INF.	36Ω	40KΩ	40KΩ	590KΩ	INF.	85Ω	135Ω
5	35Z5GT	INF.	110Ω	108Ω	110Ω	130Ω	0Ω	85Ω	40KΩ

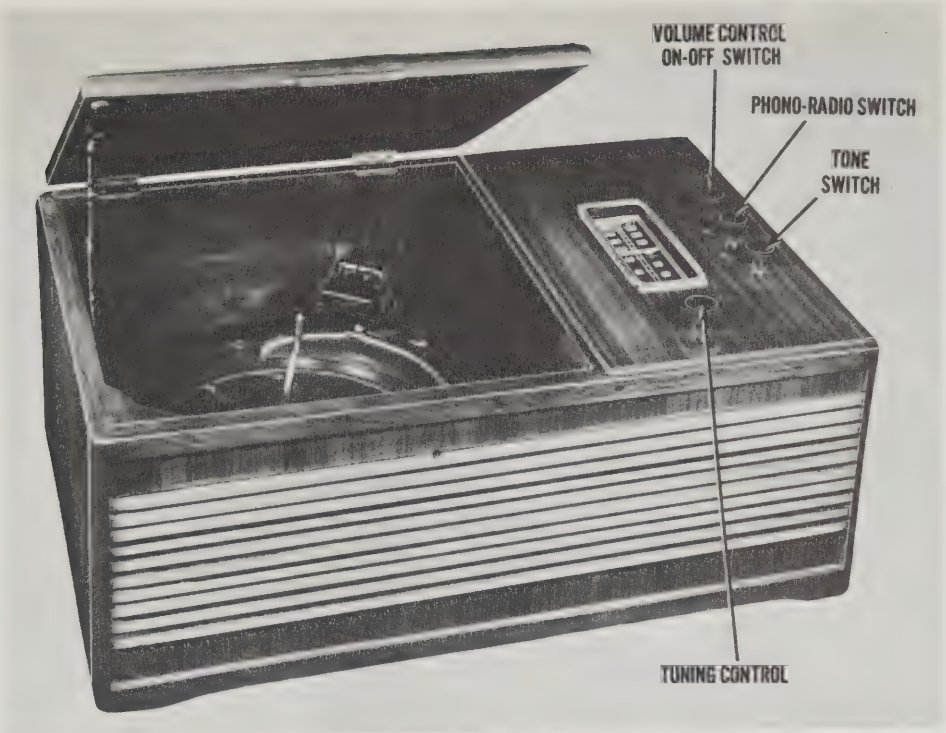
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

476-35

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



WATTERSON
MODEL ARC-4591A

WATTERSON
MODEL ARC-4591A

WATTERSON MODEL ARC-4591A

TRADE NAME	Watterson, Model ARC-4591A
MANUFACTURER	Watterson Radio Mfg. Co., 2700 Swiss Ave., Dallas, Texas
TYPE SET	AC Operated Combination Phono-Radio Superheterodyne - Self Contained Loop Antenna
TUBES (SIX)	Types, 12SK7 RF Amp., 12SA7GT Converter, 12SK7 IF Amp., 12SQ7GT Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC
TUNING RANGE—BROADCAST	540-1600KC RATING .230 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and chassis. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control at maximum position. Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to center stator of tuning cap. Low side to chassis.	455KC	Tuning cap open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
200MMFD	High side to ext. ant. lead. Low side to chassis.	1500KC	1500KC	"	A5	Adjust for maximum output.
200MMFD	"	1400KC	Tune for maximum output.	"	A6	" " " "
200MMFD	"	600KC	"	"	A7	Rock tuning cap and adjust for maximum output. Repeat last three setps.

DISASSEMBLY INSTRUCTIONS

1. Loosen set screws holding four control knobs. Remove knobs.
2. Remove staples holding bottom cover board. Remove cover board.
3. Remove phono-motor and phono-pickup plug from chassis.
4. Remove two screws holding chassis mounting board. Remove mounting board and chassis.
5. Remove three Phillips head machine screws holding mounting board to chassis. Slide chassis off mounting board.
6. Remove four hex nuts holding speaker to mounting board. Remove speaker.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: WATTERSON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	12SK7	12SK7	8N	
2	Converter	12SA7GT	12SA7GT	8AD	
3	IF Amp.	12SK7	12SK7	8N	
4	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: WATTERSON PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	40	150	19W17	EL-343	AF86D4A	UP4215C	FP357	DY-305	Filter
B	30	150							"
C	25	25							Cath. Bypass
8	30	150	19W5	UT-301	PRS150-30	BR3015	TC47	M-30-150	Filter
9	20	150	19W6	UT-201	PRS150-20	BR2015	TC45	M-20-150	Audio Cath. Bypass
10	.1	400		TC-1	484-.1	DT4P1	TP428	S-4-1	Line Filter
11	.02	400	5W7	TC-12	484-02	DT4S2	TP423	S-4-02	Output Plate Bypass
12	.01	400	5W6	TC-11	484-01	DT4S1	TP421	S-4-01	Audio Coupling
13	.001	400	5W1	TC-21	484-001	DT6D1	TP404	S-6-001	Tone Compensation
14	.006	400	5W5	TC-26	484-006	DT6D6	TP409	S-6-006	" "
15	.005	600	5W32	TC-25	684-005	DT6D5	TP408	S-6-005	Audio Coupling
16	.05	400	5W9	TC-15	484-05	DT4S5	TP426	S-4-05	IF Cath. Bypass
17	.05	400	5W9	TC-15	484-05	DT4S5	TP426	S-4-05	AVC Filter
18	.002	600		TC-22	684-002	DT6D2	TP405	S-6-002	Ext. Ant. Coupling
19	250	500	6W2	1FM-325	1468-00025	5W5T25	MC240	M0.5-325	Audio Plate Bypass
20	200	500		1FM-32	1468-0002	5W5T2	MC237	M0.5-32	Diode Filter
21	250	500	6W2	1FM-325	1468-00025	5W5T25	MC240	M0.5-325	" "
22	100	500	6W1	1FM-31	1468-0001	5W5T1	MC235	M0.5-31	Osc. Grid Capacitor
23	100	500	6W1	1FM-31	1468-0001	5W5T1	MC235	M0.5-31	RF Coupling

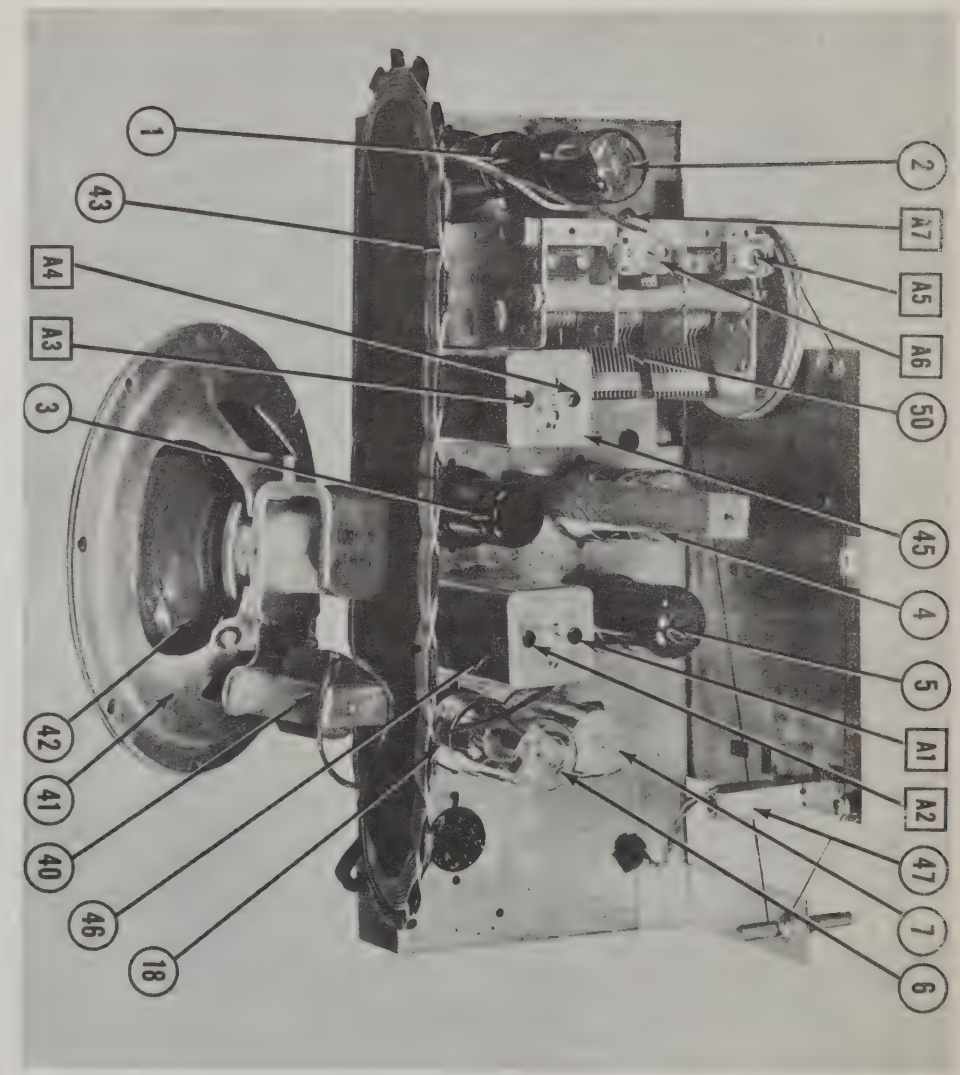
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: WATTERSON PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
24A	500KΩ	1	13W1	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 24A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: WATTERSON PART No.	IRC PART No.	IDENTIFICATION CODES
25	2200Ω	½	9W37	BTS-2200	Red-Red-Red RF Plate Load
26	100KΩ	½	9W28	BTS-100K	Br.-Blk.-Yl. Converter Grid
27	22KΩ	½	9W30	BTS-22K	Red-Red-Or. Oscillator Grid
28	1000Ω	½	9W72	BTS-1000	Br.-Blk.-Red IF Cathode
29	2.2 Meg.	½	9W56	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
30	47KΩ	½	9W52	BTS-47K	Yl.-Vl.-Or. Diode RF Filter
31	10KΩ	½	9W23	BTS-10K	Br.-Blk.-Or. AF Cathode
32	1 Meg.	½	9W55	BTS-1 Meg.	Br.-Blk.-Grn. AF Grid
33	220KΩ	½	9W62	BTS-220K	Red-Red-Yl. AF Plate Load
34	220Ω	½	9W47	BW-½-220	Red-Red-Br. Parasitic Suppressor
35	470KΩ	½	9W59	BTS-470K	Yl.-Vl.-Yl. Output Grid
36	150Ω	½	9W20	BW-½-150	Br.-Gm.-Br. Output Cathode
37	2200Ω	½	9W37	BTS-2200	Red-Red-Red Filter
38	220Ω	½	9W47	BW-½-220	Red-Red-Br. "
39	22Ω	½	9W61	BW-½-22	Red-Red-Blk. Rectifier Ballast

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		WATTERSON PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
40	1740Ω	3.4Ω	186Ω	.86Ω	12W1	A-3876*	T22S45*		*Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	VC IMP.	WATTERSON PART No.	JENSEN PART No.		
41	PM	3.4Ω	22W22			
	CONE DIA.	VC DIA.				
42	6-1/8"	1/2"	CONE HAS SPECIAL ADJUSTMENT FEATURE-ORDER FROM MANUFACTURER.			

R F COILS

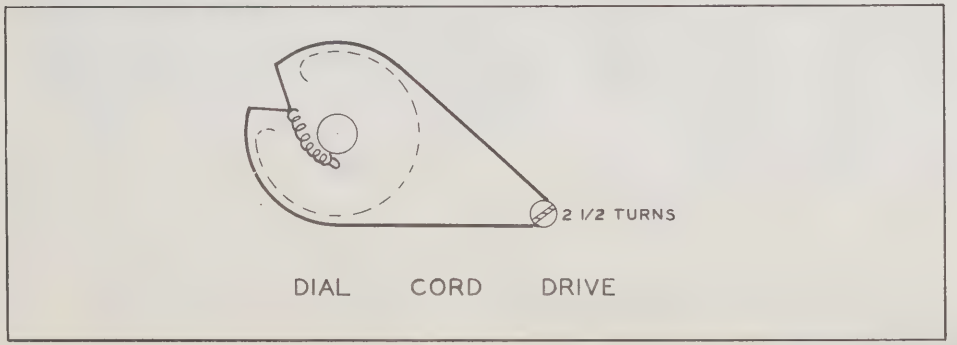
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	WATTERSON PART No.	MEISSNER PART No.	
43	Loop Ant.	.1Ω	1.3Ω	3W29		
44	Osc. Coil	1Ω	4.3Ω	3W28		
45	Input IF	20Ω	38Ω	3W36	16-6658	
46	Output IF	24Ω	19Ω	3W37	16-6660	

DIAL LIGHT

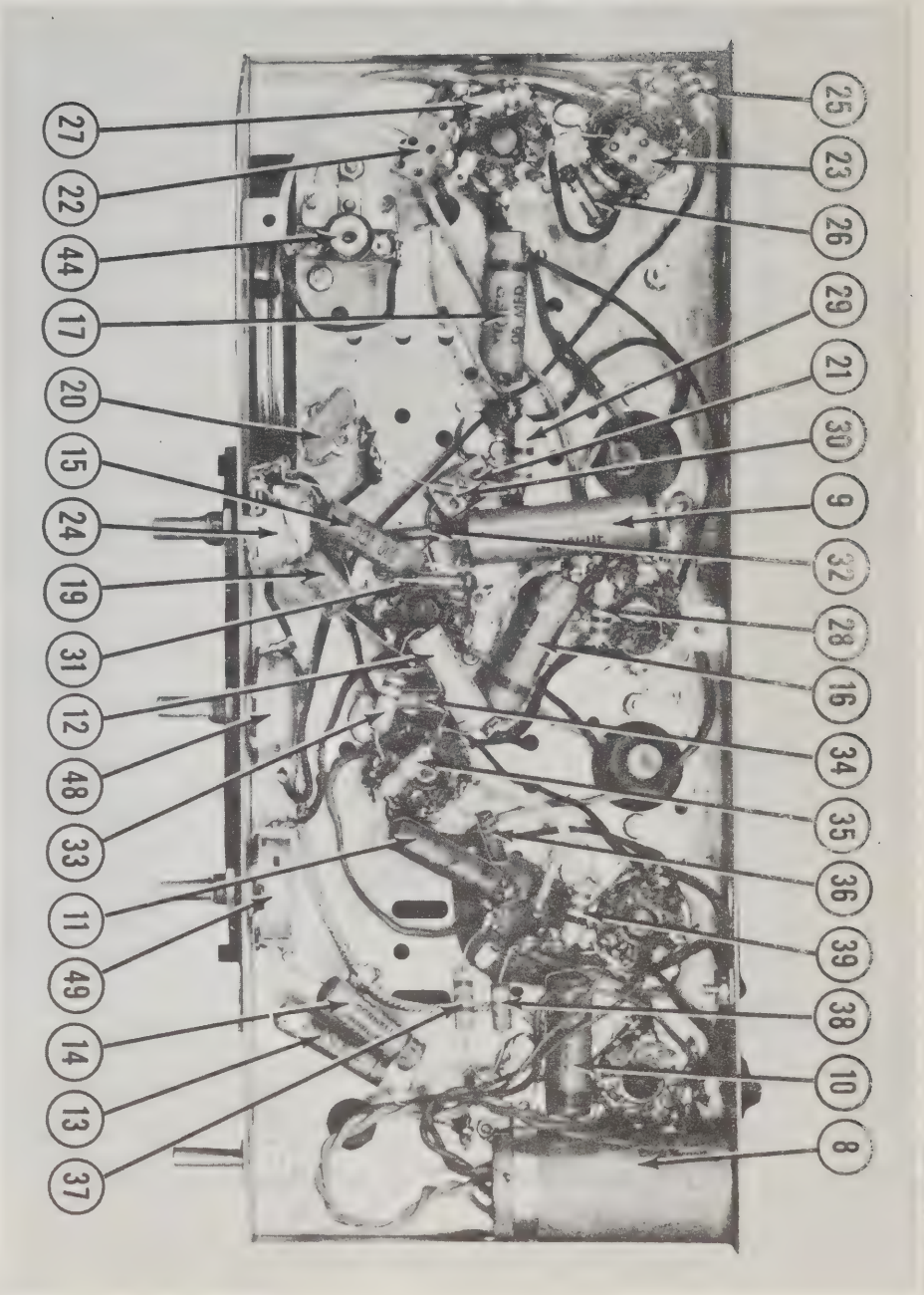
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					WATTERSON PART No.		
47	Bayonet	6-8	0.15	Brown	26W2		Type 47

MISCELLANEOUS

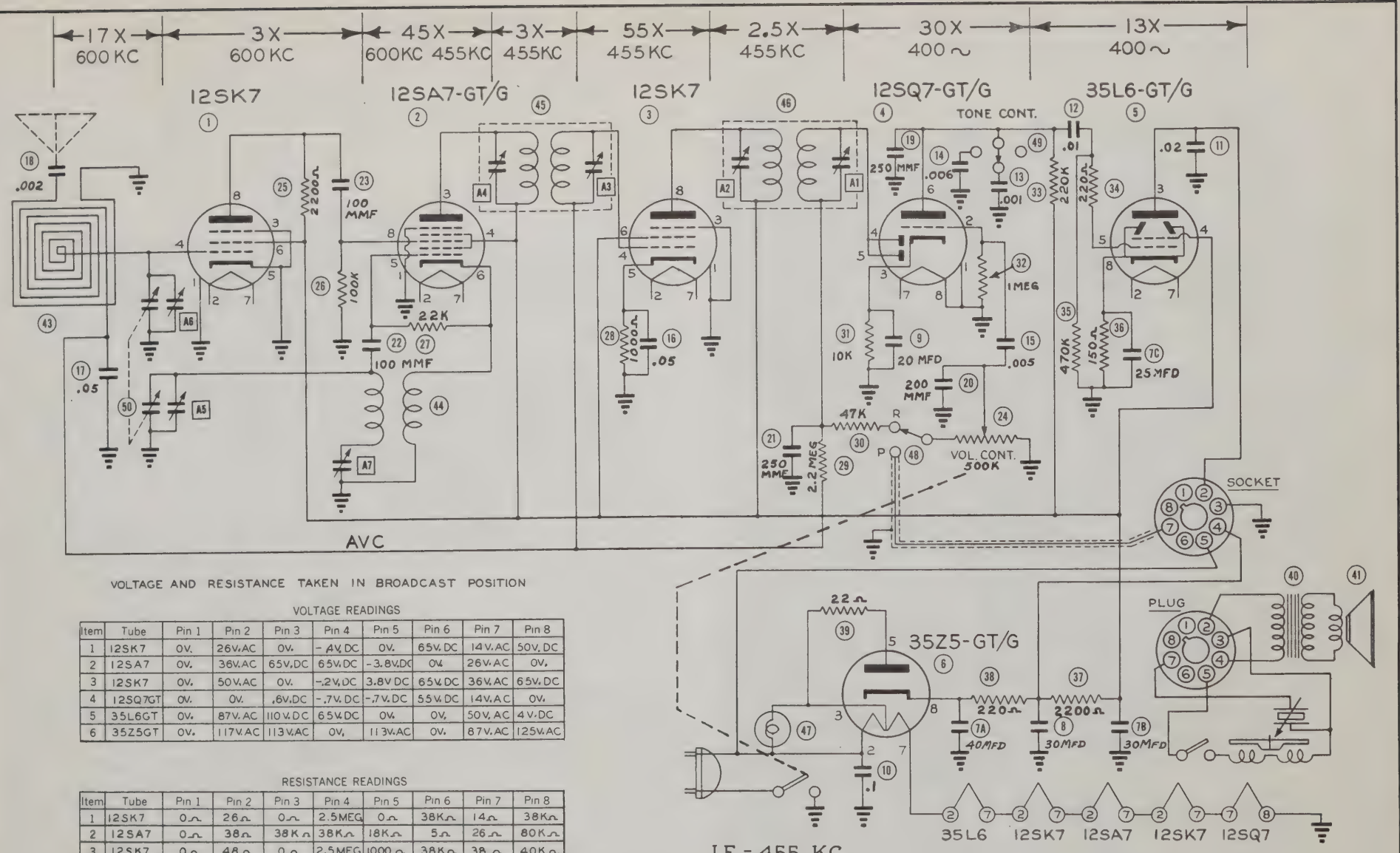
ITEM No.	PART NAME	WATTERSON PART No.	NOTES
48	Radio-Phono Sw.	11W4	
49	Tone Switch	11W2	
50	2 Gang Var. Cap.		(50-511 MMF each section)



CHASSIS—BOTTOM VIEW



WATTERSON
MODEL ARC-459IA



VOLTAGE AND RESISTANCE TAKEN IN BROADCAST POSITION

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7	0V.	26V.AC	0V.	-.4V.DC	0V.	65V.DC	14V.AC	50V.DC
2	12SA7	0V.	36V.AC	65V.DC	65V.DC	-3.8V.DC	0V.	26V.AC	0V.
3	12SK7	0V.	50V.AC	0V.	-.2V.DC	3.8V DC	65V.DC	36V.AC	65V.DC
4	12SQ7GT	0V.	0V.	.6V.DC	-.7V.DC	-.7V.DC	55V.DC	14V.AC	0V.
5	35L6GT	0V.	87V.AC	110V.DC	65V.DC	0V.	0V.	50V.AC	4V.DC
6	35Z5GT	0V.	117V.AC	113V.AC	0V.	113V.AC	0V.	87V.AC	125V.AC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7	0Ω	26Ω	0Ω	2.5MEG	0Ω	38KΩ	14Ω	38KΩ
2	12SA7	0Ω	38Ω	38KΩ	38KΩ	18KΩ	5Ω	26Ω	80KΩ
3	12SK7	0Ω	48Ω	0Ω	2.5MEG	1000Ω	38KΩ	38Ω	40KΩ
4	12SQ7GT	0Ω	1.2MEG.	10KΩ	480KΩ	480KΩ	265KΩ	14Ω	0Ω
5	35L6GT	INF.	80Ω	38KΩ	40KΩ	490KΩ	490KΩ	48Ω	130Ω
6	35Z5GT	INF.	100Ω	98Ω	INF.	120Ω	0Ω	80Ω	38KΩ

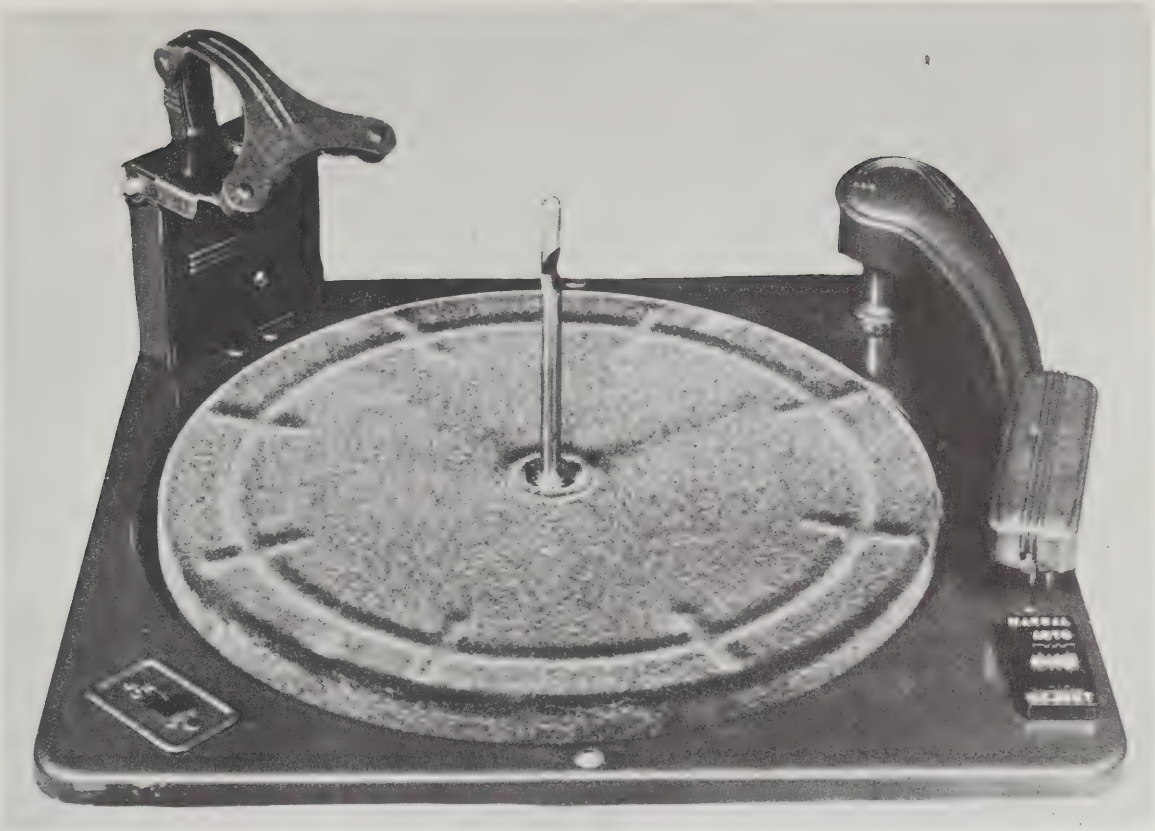
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

476-36

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by connecting negative (-) 3 volts to the AVC line.

1 - DC Voltage measurements are at 20,000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
5.- Volume control at maximum, no signal applied for voltage measurements.



TOP VIEW

GENERAL INFORMATION

This changer is designed to play automatically twelve 10-inch or ten 12-inch records, not intermixed. The last record will be repeated until the changer is turned off. The mechanism is designed to operate without gear or belt drives.

This changer is designed to operate on 115 volts, 60-cycle supply unless otherwise specified on the motor. A manual position is provided for playing off-standard or home recordings.

Manufactured by Milwaukee Stamping Co., Milwaukee 14, Wis.

MILWAUKEE ERWOOD
10700 SERIES
RECORD CHANGER

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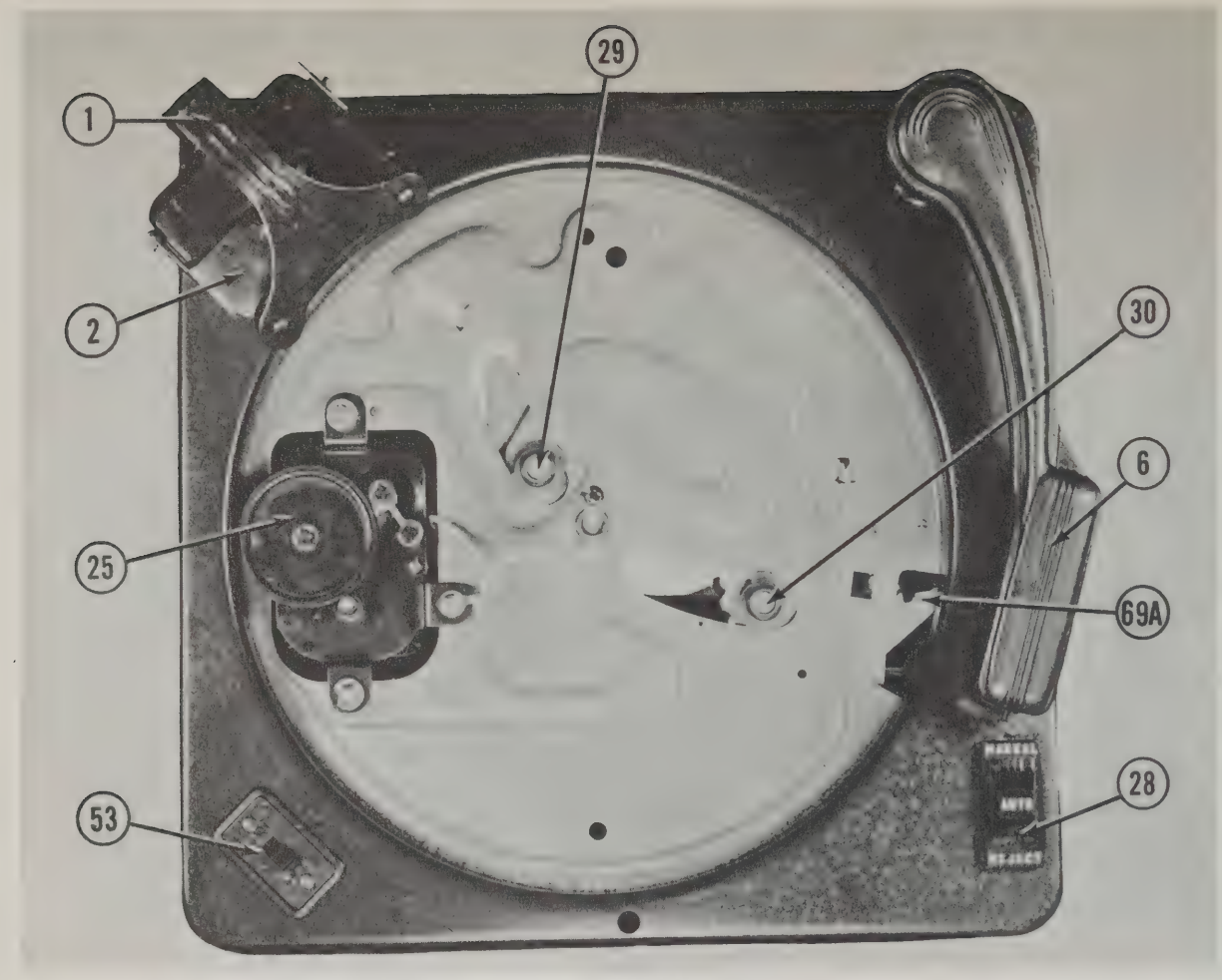


TOP VIEW LESS TURNTABLE

THE CHANGE CYCLE

The change cycle may be initiated in any of three ways:

1. Pulling the reject button (28) causes the reject arm (72) to pull against the ratchet lever (55), which in turn pushes against the adjusting stop lever (64) and causes this lever to disengage the kickoff lever arm (69).

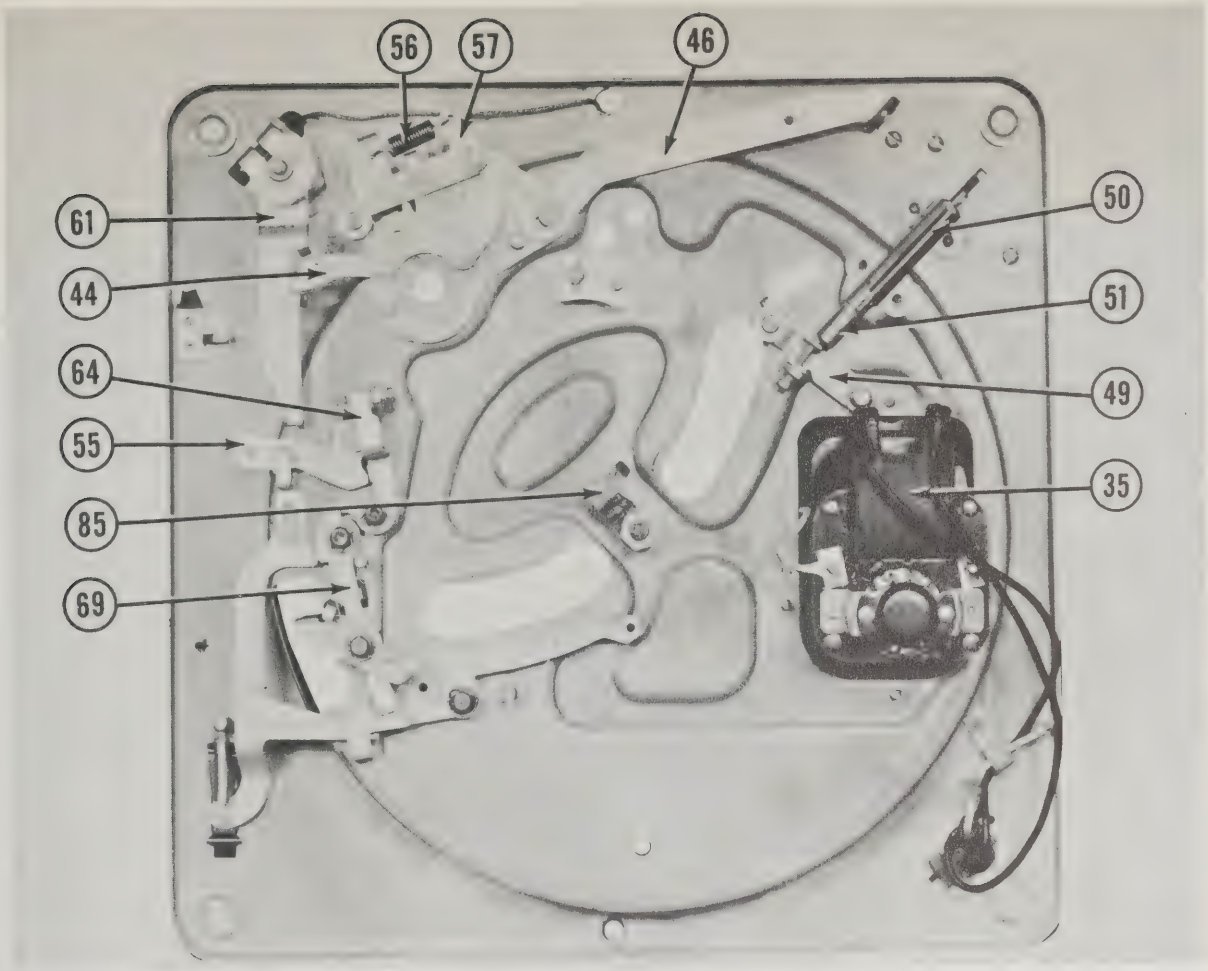
2. Any movement of the pickup arm (6) away from the spindle causes the pawl (59) to pivot, pushing against the ratchet lever. Some models do not include this eccentric trip.

3. If the needle moves to within 1⅞″ of the center of the spindle the tone arm lever (61) strikes the adjusting screw in the stop lever (64) and moves this lever.

When the kickoff lever arm is released it turns slightly, moving the kickoff lever (69A) into the path of the kickoff spring on the rim of the turntable.

The kickoff spring pivots the kickoff lever, causing it to push against the dropping lever (87) and allow the roller pin assembly (30) to rise. At the same time, the kickoff lever arm is re-engaged with the adjusting stop lever and temporarily locked in place by the locking lever (90).

As the roller pin assembly follows the spiral (on the underside of the turntable) toward the center of the turntable, the swing arm (77) moves, causing the pickup lift pin (16) to push



BOTTOM VIEW LESS SWING ARM

AUTOMATIC OPERATION

1. To load, place the pickup arm on its rest. Be sure center-post dogs are down. A maximum of twelve 10-inch or ten 12-inch records can be played. For 10-inch records, the ten-inch record support (2) should be lowered before the records are placed on the center post. 12-inch records should rest on the ears of the ejector box (10). Place balance arm (1) on the top record to assure balance and proper dropping of records. Turn the motor switch on. Pull the reject button (28) to reject position and release. This starts the changer into playing cycle and drops the first record. Records may be rejected at any time by pulling the reject button. The last record will continue to play until the changer is shut off. To shut the changer off, place the pickup arm on its rest while the turntable is still rotating. Pull the motor switch to off position. To unload, reject all records not played by pulling the reject button before shutting player off.

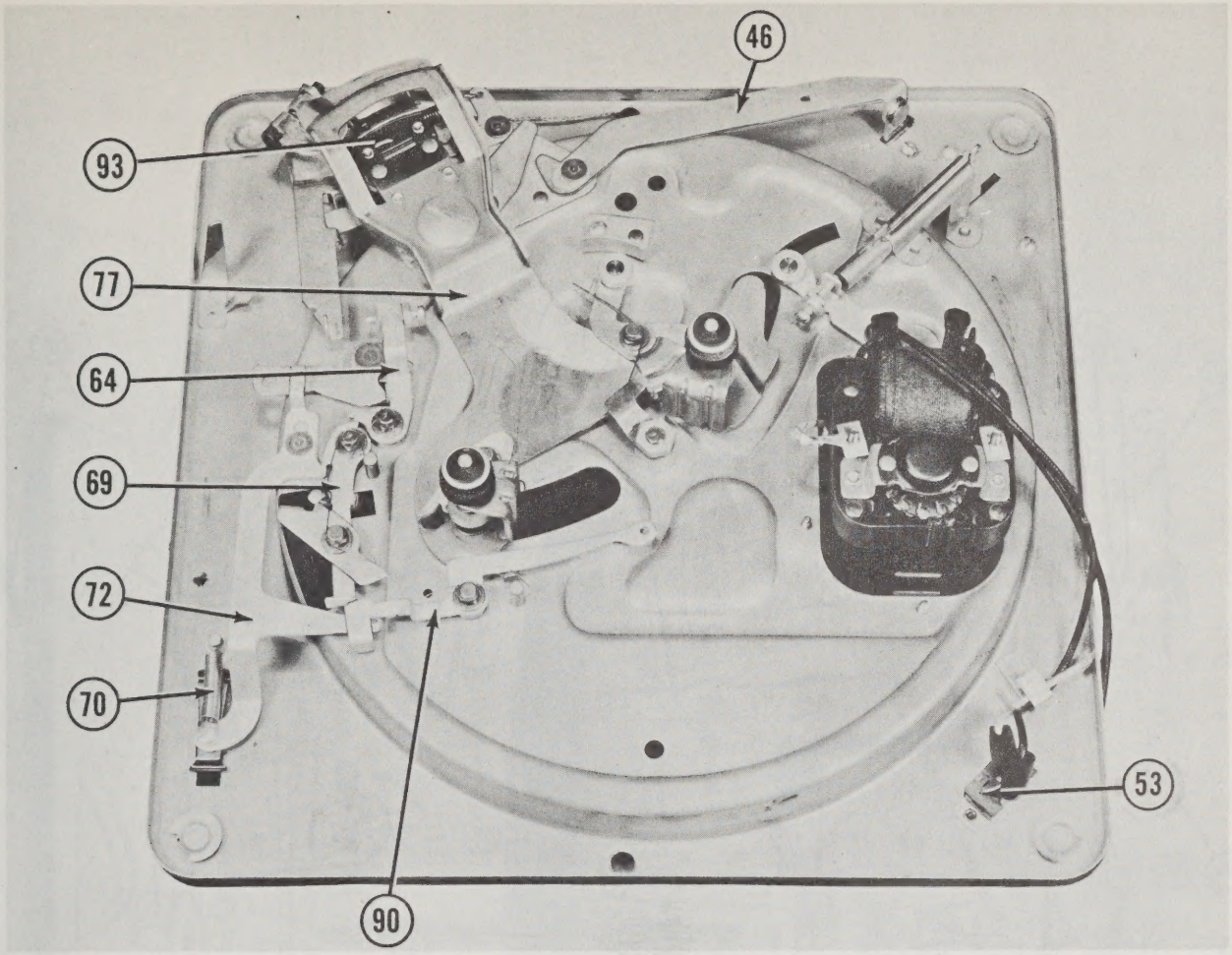
MANUAL OPERATION

1. Raise the balance arm, 10″ record support, and center-post dogs.
2. Place record on turntable.
3. Push reject button to manual position.
4. Push motor switch on.
5. Place pickup arm on record.
6. When the record is completed place pickup arm on its rest and turn motor switch off.

PARTS LIST

No.	Part No.	DESCRIPTION
1	10712	Balance Arm
2	10713	10″ Record Support
3		"C" Washer
4	10715	Ejector Compression Spring
5	10714	Pusher Pin for 10″ Ejector
6	10752	Pickup Arm
7		Needle Screw
8	10753	Pickup Cartridge
9		Crystal Mounting Screw
10	10708	Ejector Box
10A		Ejector Box Lid
11	10721	Finger Torsion Spring
12	10717	Finger
13	10718	Ejector Finger Lever
14		Acorn Nut
15		Lift Adjustment Lock Nut
16	10757	Lift Pin
17	10766	Pickup Arm Balance Ratchet
18	10764	Pickup Arm Balance Spring
19	10755	Pickup Arm Mounting Bracket
20	10702	Turntable
	10705	Turntable Collar
	10706	Bearing for Turntable Collar
21	10719	Lever Pivot
21A	10720	Pressure Spring-Ejector
22	10722	Change Lever-Ejector
23	10820	Center Post
	10821	Mechanism Plate Center Stud
	10822	Center Stud Taper Pin
	10802	Center-post Dog
24		"C" Clip
24A		Flat Washer
25	10825	Motor Idler Pulley
26		Flat Washer
27	10825	Motor Shaft
28	10816	Reject Button
29	10743	Roller Pin Assembly (Return)
30	10743	Roller Pin Assembly (Lead)
	10748	Roller Tire
31	10756	Pickup Arm Stationary Post
32	10803	Pickup Arm Rest
33		Flat Washer
34	10828	Reinforcement Washer for Center Stud
35	10825	Motor
36		Motor Mounting Screw
37		Flat Washer
38		Spacer
39		Rubber Grommet
40		Swing Arm Mounting Screw
41	10835	5/8″-18 Light Jam Nut
42	10775	Ratchet Arm Extension Spring
43	10768	Change Lever Plate
44	10772	Set-down Control Lever
45	10811	Cam Trip Bracket
46	10767	Change Lever
47		Ejector Adjustment Screw
48		Lock Nut
49	10813	Ejector Idler Lever
50	10728	Ejector Arm Extension Spring
51	10804	Record Ejector Lower Push Pin
	10724	Ejector Pin Guide
52		Ejector Box Mounting Screw
53	10824	Motor Switch
54		Trip Bracket Lock Screw
55	10777	Ratchet Lever
56	10774	Cam Lever Extension Spring
57	10769	Cam Lever
58	10773	Change Lever Fulcrum Pin
59	10760	Ratchet Dog
60	10761	Ratchet Extension Spring
61	10759	Tone Arm Lever
62		Tone Arm Lever Clamp Screw
63		Tone Arm Lever Clamp Nut
64	10780	Positive Stop Lever
65		Positive Stop Lock Nut
66		Positive Stop Adjustment Screw
67	10783	Positive Stop Lever Spring
68	10814	Reject Arm Spring
69	10785	Kickoff Lever Arm
69A	10786	Kickoff Lever
70	10826	Reject Arm Tension Spring
71		Reject Button Mounting Screw
72	10812	Reject Arm
73	10790	Kickoff Lever Spring
74	10789	Kickoff Lever Arm Spring
75	10742	Bearing Pin Shoulder Nut
76	10750	Roller Pin Compression Spring
77	10729	Swing Arm
	10745	Swing Arm Clamp
78		Spacer
79	10751	Bearing Pin Spacer
80	10744	Roller Cushion Washer
81	10801	Washer for Bearing Pin
82		Spring Nut
83	10730	Return Trip Lever
84		Spacer
85	10741	Brake Spring
86		Brake Spring Mounting Nut
87	10731	Dropping Lever
88	10738	Fulcrum Bearing Nut
89	10734	Drop Lever Torsion Spring
90	10793	Locking Lever
91	10733	Cammed Dropping Lever Torsion Spring
92	10795	Locking Lever Torsion Spring
93	10791	Ratchet Arm Friction Spring
94	10737	Arm Cam
95	10701	Base Plate

Special rivets should be ordered by reference to the part with which they are used.



BOTTOM VIEW

the tone arm up clear of the record.

The spring fingers (93) engage the tone arm lever (61) causing the tone arm to move out clear of the record stack. The cam lever (57) is moved out of the way, allowing the set-down control lever (44) to move into position to stop the tone arm lever as it moves back into set-down position.

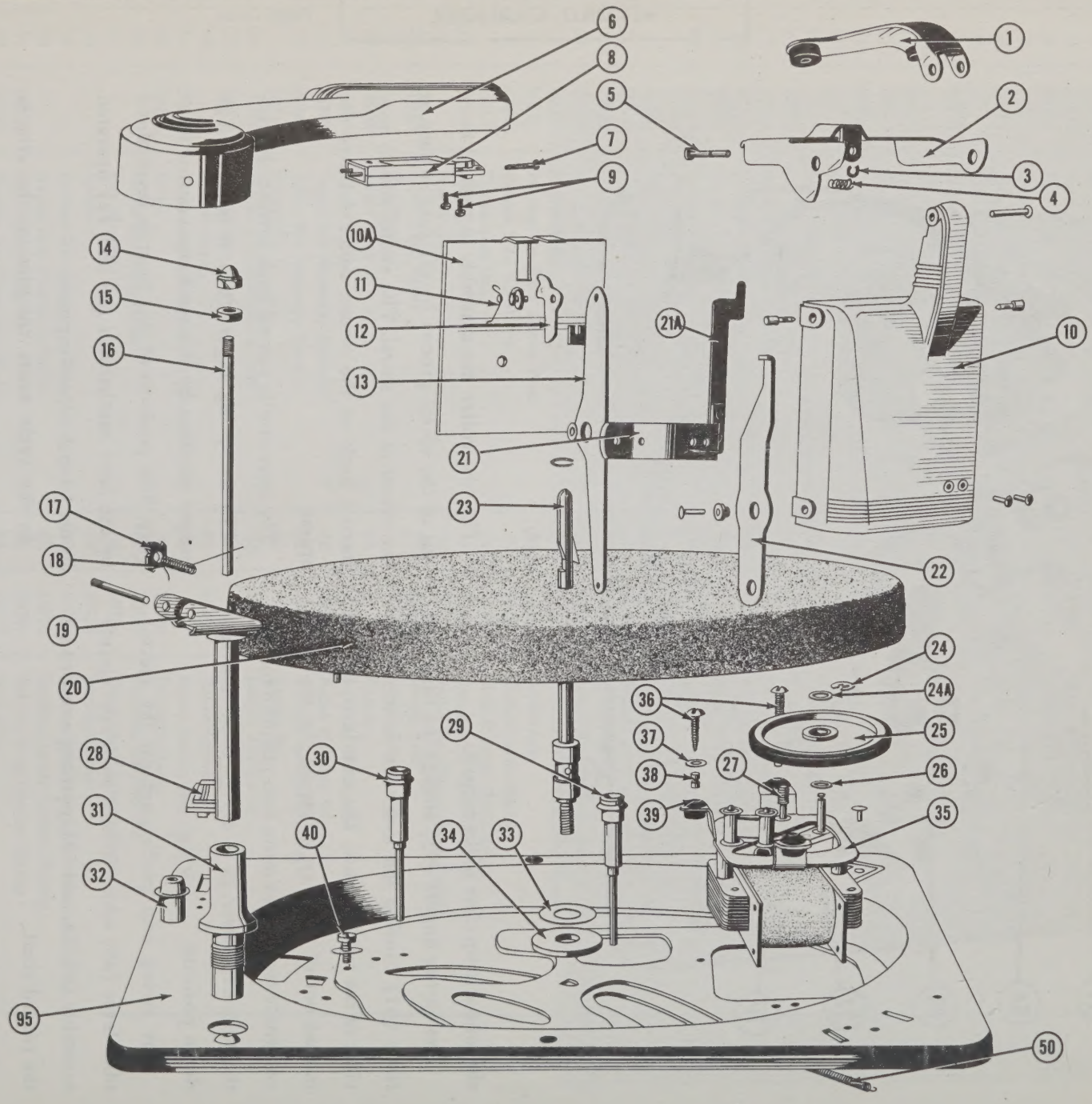
The swing arm pushes against the ejector idler lever (49) which in turn moves the ejector assembly (51, 13, and 12), pushing a record off the record shelf.

As the swing arm nears the end of its swing the cammed dropping lever (83) is moved by the cam trip bracket (45), allowing the return roller pin (29) to rise and enter the spiral groove.

The first roller pin assembly is pushed back out of the spiral groove by the cam surface at the center of the spiral. The swing arm is now moved back as the return roller follows the spiral.

The tone arm is moved back toward the record by the spring fingers (93). It is stopped in proper position by the set-down control lever (44). The position of this lever is determined by the lever mechanism (46 and 22) operated by the 10 inch record support.

As the cycle nears completion, the arm is lowered and the set-down control lever is moved away from the tone-arm lever by the cam lever (57), leaving the tone-arm free to move across the record.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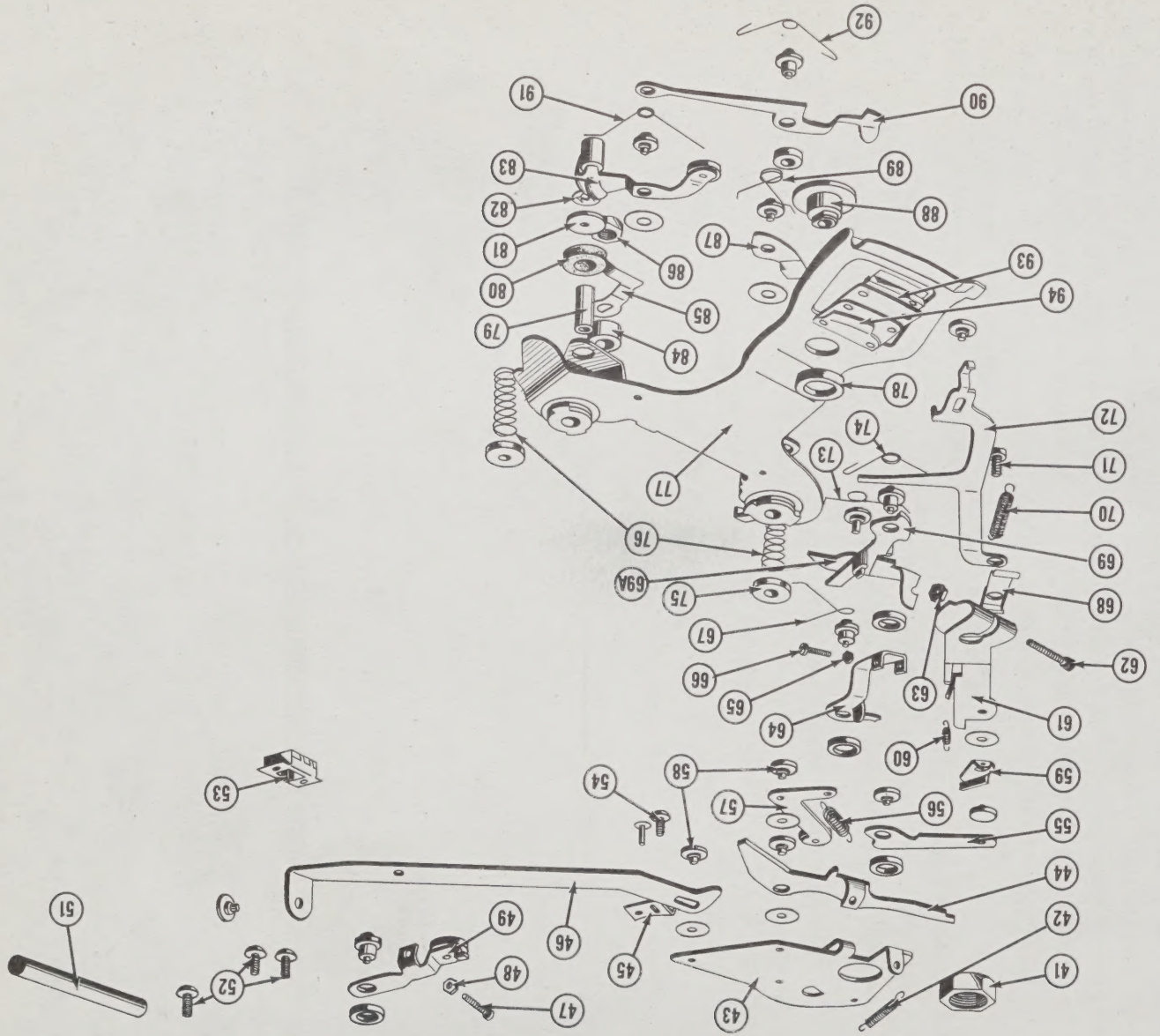
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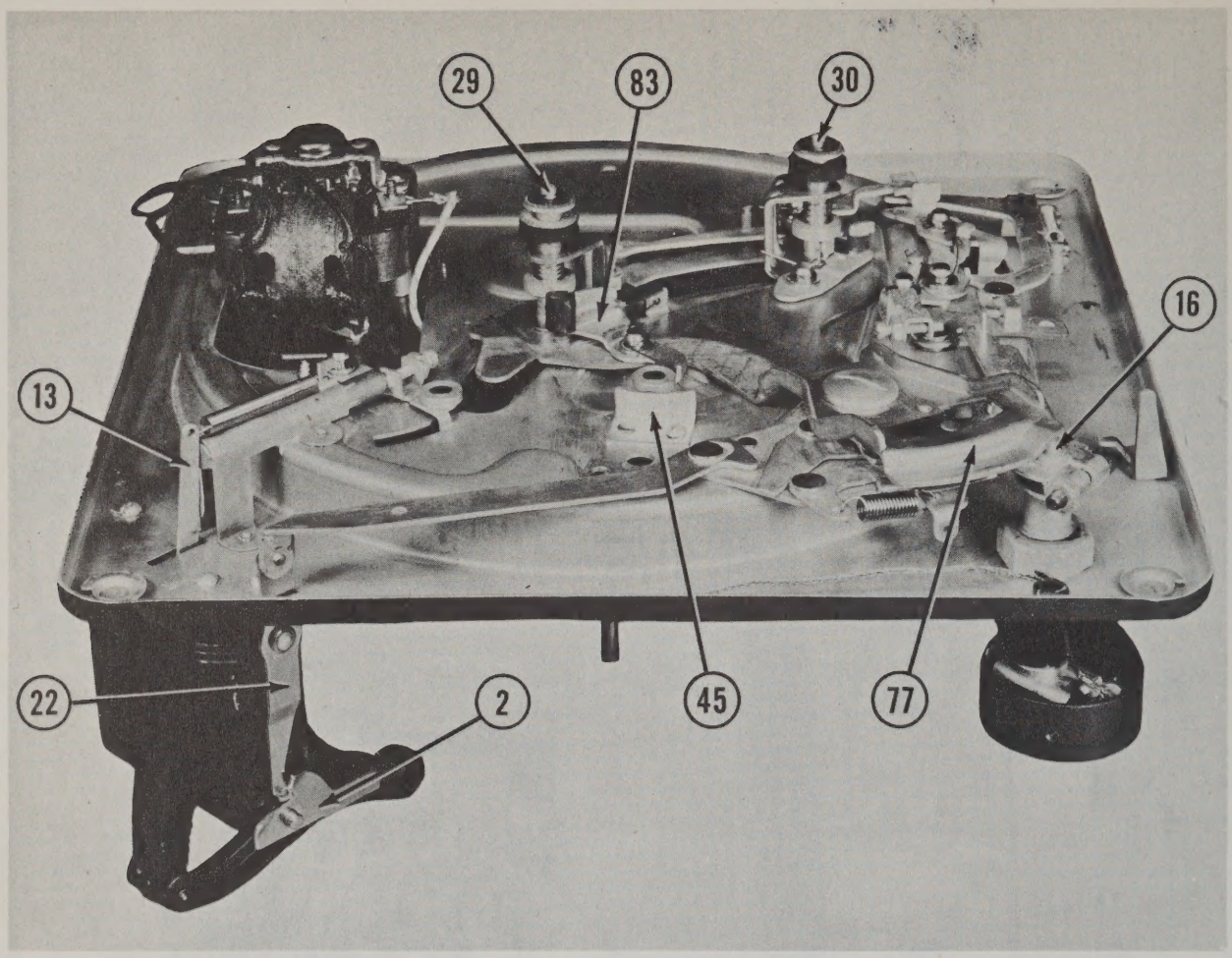

REAR VIEW

TROUBLES

1. Record fails to drop.

Trip changer, rotate turntable by hand until swing arm (77) completes first half of cycle.

a. Adjust screw on ejector idler lever (49) until finger (12) extends 15/64″ outside of the ejector box.

b. Finger (12) at maximum rise should be .085″ -.095″ above ejector box. File to give proper dimension.

c. Check height of ears on 10″ record support (2) and top of pusher pin (5). Pin (5) should engage record by .080″ to .090″. Bend ears to suit.

2. Pickup arm does not set down in correct position.

a. Put 10″ record on turntable with 10″ support down, place pickup arm needle 1/8″ from edge of record. Pull the reject button. Rotate turntable by hand until swing arm (26) has gone 1/3 way in the second half of cycle. Set the tonearm lever (61) to the set-down control lever (44) and tighten the screw on the tone-arm lever. This will also set the needle down correctly for 12″ records.

3. Mechanism is tripped before record is completed.

a. Adjust the screw on the positive stop lever (64) so that the changer trips at a point 1 7/8″ from the center of the record.

4. Pickup arm does not set down on record.

a. This can be adjusted by the cap nut on top of the pickup lift pin (16). The height should be adjusted to give approximately 1/4″ clearance between the pickup and bottom record of the unplayed stack at the highest point during the change cycle.

5. Continuous cycling or failure to trip.

a. Check all springs to see if any are loose or missing.

b. Check all parts to see if they move freely.